

LESSON STUDY DESIGNED TO INFLUENCE TEACHERS' KNOWLEDGE AND BELIEFS
RELATED TO BOYS AND LITERACY

by
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TEACHER KNOWLEDGE & BELIEFS ABOUT BOYS AND LITERACY

Abstract

Teacher knowledge and beliefs related to boys and literacy may contribute to the literacy achievement gap between boys and girls. After a review of literature related to this achievement gap and interventions designed to address it, I determined that boys' literacy outcomes may be improved through professional development designed to influence teachers' knowledge and beliefs related to boys and literacy. Ecological systems theory served as the theoretical framework and teacher pedagogical knowledge and skills (TPK&S) the conceptual framework. I conducted a mixed methods case study to explore the effects of professional learning rooted in lesson study on teachers' knowledge and beliefs related to boys and literacy with the intention of ultimately improving boys' literacy outcomes. The four participants in the study attended 11 sessions over 14 weeks during which they participated in a lesson study and integrated components of gender-relevant pedagogy and balanced literacy into the lesson they designed. Semi-structured interviews, participant journal entries, a researcher's diary, field notes, the Beliefs about Boys and Reading Instruction survey, the Knowledge about Boys and Reading Instruction quiz, exit tickets, and an observation protocol were used to assess process and outcome objectives. There was a statistically significant shift in participants' knowledge, but quantitative measures indicated no definitive changes to beliefs. Qualitative data suggests that participants knowledge and beliefs shifted in the areas of student-centered instructional design, personalization, and student-centered classroom practices, and changes to participants' knowledge of the gender literacy gap, providing students with choice, and designing for boys and girls were detected.

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Keywords: teacher knowledge, teacher beliefs, boys' literacy, reading, professional learning, professional development, lesson study, gender-relevant pedagogy, balanced literacy, classroom practices, personalization, instructional practice

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Dedication

This dissertation is dedicated to Lisa, the love of my life and a woman I feel unendingly grateful to call my wife, our beautiful children Kiera and Colin Robert, and my mother Lynn, who has been by my side from my first day of school to my last. I love you all. Thank you for everything and I hope I've made you proud.

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Executive Summary

This study explores the use of lesson study, a traditionally Japanese form of professional development, to influence teacher knowledge and beliefs related to boys and literacy. Literacy is a critical skill, and poorer literacy achievement has been linked to low self-esteem (Henry, Lagos, & Berndt, 2012), lower lifetime earnings (Park & Kyei, 2011), and less healthy psychological development (M. W. Smith & Wilhelm, 2002). The ability to read allows individuals to grapple with complex issues and is vital to the continued functioning of a free society (Ippolito, Steele, & Samson, 2008). A literacy achievement gap between boys and girls exists and appears to have increased from the 1970s to today (Marks, 2008). Results from the Programme for International Student Assessment (PISA) reading examination indicate that the gender literacy gap is present in every one of the 72 countries tested in 2015 (OECD, 2017). This study aimed to address this achievement gap through professional learning aimed at elementary and middle school English language arts teachers.

The Problem of Practice and the Current Context

The increase in standardized testing across all grade levels in the United States over the last three decades has shed light on a number of achievement gaps among different subgroups, including between low and higher SES students (White et al., 2016) White and Black students (Mocombe, Tomlin, & Showunmi, 2017), and male and female students (Cobb-Clark & Moschion, 2017). The achievement gap of interest in this study is the literacy gap between boys and girls, which is present on the first day of kindergarten (Downey, von Hippel, & Broh, 2004), continues through elementary school (Cannon & Karoly, 2007), persists into high school (Brozo et al., 2014), and is similar in size to the overall achievement gap between White and Black students (National Center for Education Statistics, 2012; Persky, Daane, & Jin, 2003). In one

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national study of gender achievement gaps, a gender literacy gap in English language arts of roughly 0.23 standard deviations favored girls (Reardon, Fahle, Kalogrides, Podolsky, & Zárte, 2018).

The context of this study is St. Stephen's Catholic School, a coeducational urban Catholic school that serves kindergarten through eighth-grade students. The school is situated in a bedroom community in a densely populated borough situated within a major metropolitan city in the northeastern United States, and is governed independently by a board of education, pastor, and principal, with additional oversight provided by the local Catholic diocese. Total enrollment for 2019-20 was 250 students, of which 125 were male, and 92 male students were enrolled in Grades 3-8 during this time. Of the nine full-time teachers who teach on a daily basis, four met the criteria for inclusion in this study, which required participants to be Grade 3-8 English language arts teachers.

Factors Contributing to the Problem of Practice

A number of factors may contribute to the literacy achievement gap between boys and girls, including factors related to male identity and education, education policy and school design, students (including motivation, attitudes towards reading, and socioeconomic status), and teachers (including teacher knowledge, beliefs, and efficacy). Boys have been considered academic underachievers since the late 17th century (Cohen, 1998). Their relatively low academic achievement has been a public concern since at least the early 20th century (Ayres, 1909), and boys' rejection of school values has become part of common conceptions of masculine identity (Jones & Myhill, 2004). Additionally, despite increasingly frequent media reports and a stream of research affirming the existence of the gender literacy gap in the United States, there has yet to be a federal response focused on the literacy achievement gap between

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boys and girls (Brozo et al., 2014). Student factors may also have an impact on this achievement gap, since students help shape their learning environments and negotiate individual and group identity through speaking, listening, and socializing (Bausch, 2007). Finally, teacher knowledge, instructional approaches, beliefs, and efficacy are critical elements of classroom instruction and student-teacher interactions, and, as such, influence student literacy and literacy practices. There is empirical evidence that teacher knowledge of their students and research-based instructional strategies can affect student learning (Lyon & Weiser, 2009; McCutchen et al., 2002; McCutchen, Green, Abbott, & Sanders, 2009), and teacher beliefs affect students' reading ability and self-concept (Retelsdorf, Schwartz, & Asbrock, 2015).

Standardized testing results indicate that the gender literacy achievement gap is present at St. Stephen's Catholic School. Girls substantially outperform boys on Grades 3-8 state and Terra Nova English language arts and Reading assessments, which is consistent with local (Reardon et al., 2018), regional (Kober, Chudowsky, & Chudowsky, 2010), national (Snyder, de Brey, & Dillow, 2018), and international (OECD, 2017) trends. More specifically, the Terra Nova Verbal and Reading results from St. Stephen's Catholic School indicate that boys have performed similarly to their female counterparts twice in nine testing sessions since 2015; every other session revealed a gap between male and female English language arts skills attainment.

Evidence of the Contributing Factors in the Current Context

To examine factors contributing to the literacy achievement gap between boys and girls, I conducted a needs assessment exploring teacher knowledge about literacy instruction and teacher knowledge and beliefs about boys and literacy in the context of a Catholic elementary school in a large Northeastern city. The purpose of this needs assessment was to understand if and how the factors of teachers' knowledge about boys, knowledge of research-based instructional

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approaches to teaching literacy, and beliefs about boys play out in my context. In order to answer the research questions posed in my needs assessment, I used a convergent, parallel mixed methods design (Lochmiller & Lester, 2016) in which quantitative and qualitative data were collected simultaneously so that the results could be compared as data were collected.

The needs assessment utilized one qualitative data collection instrument, semi-structured telephone interviews, and three quantitative measures: the Knowledge about Boys and Reading Instruction Survey (KBRI) (Fleming, 2013), the Beliefs About Boys and Reading Instruction Survey (BBRI) (Alloway, Freebody, & Muspratt, 2002), and the Balanced Literacy Classroom Activity Observation (Frey, Lee, Tollefson, Pass, & Massengill, 2005). Interviews were semi-structured to allow participants to delve more deeply into questions related to boys and literacy, and to provide the opportunity for follow-up questions. Classroom observations were conducted remotely, and the Balanced Literacy Evaluation Project Classroom Activity Observation Sheet (Frey et al., 2005) was used for evaluating the use of research-based instructional strategies during the observed lessons. The version of the KBRI used for this study contained 18 questions pertaining to participants' knowledge related to boys and literacy, while the Likert scale-based BBRI probed teacher beliefs with opinion-based questions about boys' literacy.

The survey, quiz, interview, and observation data provided valuable information about the needs in this context. Teacher knowledge related to boys and literacy was not always accurate, and a disconnect between existing research about boys and literacy and teacher beliefs about the topic emerged at times. Further, classroom observations did not always reflect the integration of research-based literacy instruction into instructional contexts. The results of the KBRI indicated that teacher knowledge about reading instruction for boys was inconsistent. Of the 15 true/false questions administered on the KBRI, 22.2% ($N = 4$) four were answered

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correctly by all respondents. Results of the BBRI indicated that teachers' beliefs differed regarding whether educators need to understand more about male culture to improve reading instruction for boys and whether boys' behavior at school significantly affects their levels of reading achievement. Three individual interviews were conducted, and responses reinforced several conclusions derived from survey and quiz data, including the belief that boys struggle with literacy more than girls do, and that classroom libraries are often not providing high interest texts for boys.

Frameworks for the Intervention Study

To address the factors identified during the literature review and needs assessment, an intervention program was developed in October 2020 and delivered over 14 weeks, from November 2020 to February 2021. The intervention consisted of an 11-session lesson study that focused on integrating balanced literacy and gender-relevant pedagogy into a lesson collaboratively designed by four Catholic school teachers. The study's theoretical framework was rooted in Bronfenbrenner's (1979) ecological systems theory, while its conceptual framework was Gess-Newsome's (2015) teacher pedagogical knowledge and skills (TPK&S) framework. Additionally, two pedagogical constructs framed the intervention: balanced literacy, a skills-based approach to teaching literacy focused on "reading comprehension and students' creation of meaning through active interaction with text" (Bitter, O'Day, Gubbins, & Socias, 2009, p. 18), and gender-relevant pedagogy, which encourages teachers to choose course materials to which both male and female students can make meaningful connections (Bristol, 2015).

Ecological Systems Theory

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Ecological systems theory is primarily concerned with the conditions and processes that foster human development in authentic human living environments (Bronfenbrenner & Morris, 2007). Bronfenbrenner ultimately proposed an ecological paradigm that stressed that human development occurs when an individual interacts with the environment in which they are situated, and that enduring forms of interactions are known as proximal processes. As the complexity of these interactions increases, so does the individual's capacity for growth. Proximal processes produce and sustain development within the environment of the microsystem. The microsystem is an individual's immediate surroundings and microsystems are composed of patterns of activities, social roles, and relationships centered around an individual (Bronfenbrenner, 1994). The mesosystem was defined as a "set of interrelations between two or more settings in which the developing person becomes an active participant" (Bronfenbrenner, 1979, p. 209), and macrosystems as the larger context of social and cultural values within which the individual exists. An exosystem is a setting in which the developing individual is not an active participant, but events taking place at this system level may either influence or be influenced by social interactions that take place in the setting containing the individual (Bronfenbrenner, 1979). The chronosystem extends the developing individual's environment into time (Bronfenbrenner, 1994).

Teacher Pedagogical Knowledge and Skills

This study is conceptually rooted in Gess-Newsome's (2015) teacher pedagogical knowledge and skills (TPK&S) framework, which is an adaptation of Shulman's (1987) original conception of pedagogical content knowledge (PCK). The complex nature of teacher knowledge and its relationship to instructional practice was captured in Shulman's (1986, 1987) PCK, which posited that teachers must possess both content knowledge and knowledge of content pedagogy

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to deliver effective instruction. Shulman's conception, however, did not address teacher beliefs or other mediating factors, the absence of which have been noted by some proponents of the framework (Magnusson, Krajcik, & Borko, 1999). TPK&S updates the existing model to include the mediating effect of teachers' beliefs, prior knowledge, and behaviors on instructional practice (Gess-Newsome, 2015).

Balanced Literacy

Balanced literacy emphasizes phonemic awareness, word recognition instruction, vocabulary teaching, comprehension strategies, extensive reading in various forms, and self-monitoring (Pressley, Roehrig, Bogner, Raphael, & Dolezal, 2002). New York City's Department of Education identified five critical components of balanced literacy: (a) phonemic awareness, (b) phonics instruction, (c) fluency, (d) vocabulary, and (e) comprehension (New York City Department of Education, 2003), and these components have been utilized in interventions in the past (Shaw & Hurst, 2012). Teachers implementing balanced literacy strategies aim to combine direct, explicit skills instruction and reading for meaning to enhance student reading motivation (Pressley & Allington, 2014). Balanced literacy programs have been introduced across grade levels at schools of various types (Frederick, 2017; Rog, 2003; Shaw & Hurst, 2012; Willson & Falcon, 2018), and teachers have a critical role in their implementation (Coburn & Stein, 2006).

Gender-Relevant Pedagogy

Gender-relevant pedagogy (GRP) is an approach to teaching that explicitly focuses on gender as a mediating factor in students' education, specifically regarding student literacy. GRP strategies often begin with reconnaissance (Gresham & Gibson-Langford, 2012), conferencing (DeFauw, 2016), and similar strategies designed to help the teacher understand the interests and

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out-of-school lives of their students. From there, teachers and researchers have utilized a number of strategies to engage boys and improve their literacy outcomes, including allowing and encouraging games and competition (Carroll, 2016), relationship building between teachers and male students (L. Martinez, 2010), providing student choice of activities (Carroll & Beman, 2015), texts (Brozo, 2010), and topics (DeFauw, 2016), engaging boys' personal interests with pop culture and familiar texts (Brozo, 2006; Guenther, 2017), providing experiential and active learning opportunities (Alloway et al., 2002; Michael Reichert & Hawley, 2010), offering mentor texts to guide reading and writing (DeFauw, 2016), providing opportunities for peer sharing (DeFauw, 2016), showing boys positive male archetypes in texts (Brozo, 2010), and integrating technology into literacy lessons (Bristol, 2015). While Bristol (2015) coined the phrase gender-relevant pedagogy, a number of researchers have addressed the teaching of boys through a similar lens. Brozo (2010) referred to boy-friendly approaches to instruction, while Reichert and Hawley (2010) discussed pedagogy that involved teaching fitted to boys' lives. It is critical to note that none of these strategies intend to privilege a specific conception of maleness, and gender-relevant approaches to teaching literacy are not designed to treat boys as a cohort with a singular set of interests.

The Intervention: Lesson Study Centered on Balanced Literacy and Gender-Relevant

Pedagogy

This intervention was designed to influence teacher knowledge and beliefs related to boys and literacy in order to improve boys' literacy outcomes. An intervention that (a) has the potential to modify teacher knowledge and beliefs, (b) includes professional development on research-based literacy instructional practices, and (c) prioritizes strategies that are gender-relevant has the potential to be impactful. Inservice professional development has changed

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teacher knowledge and beliefs related to literacy (Borg, 2011; Doubet & Southall, 2018) and has helped researchers determine that specific literacy instructional practices support male literacy (Bristol, 2015; Ladson-Billings, 1994; S. A. Robinson, 2019). Inservice professional development was chosen as the method of delivery for the proposed intervention. A professional development series that provides inservice teachers support implementing a gender-relevant literacy program based can offer teachers knowledge of instructional strategies for learners of all types, and in the process potentially influence existing knowledge and beliefs about literacy and student gender.

Study Rationale and Research Questions

The purpose of this intervention was to show change to teacher knowledge and beliefs through the integration of gender-relevant pedagogical strategies and components of the balanced literacy approach into participants' instructional practices for literacy through lesson study. Lesson study is an improvement science-based approach to professional learning (Dudley, 2014; Lewis, 2015). The Japanese concept of lesson study fulfills many of the requirements for high quality professional learning including being collaborative, centered around active learning (Darling-Hammond, Hyler, & Gardner, 2017), relevant to teacher's practices (Lewis & Hurd, 2011), and content-focused (Desimone & Garet, 2015). Four research questions were posed during this study:

RQ1: How did participants describe the quality of program delivery offered during the intervention?

RQ2: To what extent were all the intended components of the intervention provided to program participants?

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RQ3: What changes if any did Grades 3-8 English language arts teachers perceive in their knowledge and beliefs related to boys and literacy after professional development on balanced literacy and gender-relevant pedagogy?

RQ4: What changes if any did the researcher perceive in Grades 3-8 English language arts teachers' knowledge and beliefs related to boys and literacy after participation in professional development focused on balanced literacy and gender-relevant pedagogy?

Research Design and Methodology

This case study utilized qualitative and quantitative measures to determine if professional development on balanced literacy and gender-relevant pedagogy influences teachers' knowledge and beliefs about boys and boys' literacy, as well as knowledge of research-based instructional literacy practices. A mixed methods approach was chosen because this design allows the quantitative strands to inform the qualitative strands, and using a multiplicity of data sources provides more opportunities for triangulation (Lochmiller & Lester, 2016). Further, mixed methods research is most closely associated with a pragmatic worldview, as the focus is on the outcome of the study and is oriented towards real world applications of the knowledge derived through research (Creswell & Plano Clark, 2017).

All participants in the study were Grades 3-8 elementary school and resource room English language arts teachers at St. Stephen's Catholic School providing literacy support to students. Convenience sampling in conjunction with criterion sampling were used to identify potential teacher participants. The primary qualitative measures used in this study consisted of mid- and post-intervention semi-structured interviews, the researcher's field notes, the researcher's diary, and journal reflections posted to Google Classroom by participants. Quantitative measures consisted of Likert scale exit ticket responses to five exit ticket prompts,

an observation protocol to record attendance data, sessions completed, journal entries posted, and modules viewed, the Knowledge about Boys and Reading Instruction quiz (KBRI) adapted from Fleming (2013), and the Beliefs about Boys and Reading Instruction survey (BBRI) adapted from (Alloway et al., 2002). The inclusion of qualitative and quantitative measures provided opportunities for triangulation, complementarity, development, and expansion of the research (R. B. Johnson & Onwuegbuzie, 2004).

Findings and Discussion

This mixed methods case study sought to provide answers to two process and two outcome research questions. The instruments used to assess quality of program delivery produced data that was largely consistent. Participants' exit ticket responses were overwhelmingly positive, with virtually every participant giving the highest possible rating to every session of the intervention, and participants were similarly enthusiastic during interviews and in their journal entries. When participants provided more granular responses, they praised the opportunities for peer support and collaboration afforded to them during this intervention, as well as the instructional design of the sessions.

Technological issues, working remotely, and time limitations were the most frequently cited challenges to quality of delivery, with participants expressing unhappiness at having to work from home and the nature of observing the lessons virtually rather than in person. Participants also preferred to work collaboratively and did not embrace asynchronous activities, which is consistent with Nickerson et al.'s (2012) findings during a study of a hybrid online/in-person lesson study. Participants in the study frequently used a website designed for collaborative planning but did not participate in many sustained asynchronous discussions or share many substantive discussion posts.

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Participants indicated that they were satisfied with the extent to which the intervention's intended components were delivered. During interviews, participating teachers spoke highly of the extent of component delivery, with all four participants praising this aspect of the intervention. Additionally, feedback from exit tickets indicated high levels of satisfaction with the extent to which components were provided, as all participants either *agreed* or *strongly agreed* that the sessions met their goals in exit ticket responses.

Several conclusions can be drawn regarding participant-reported changes to knowledge and beliefs about boys and literacy. Journal entries and interviews revealed the variety of ways participants felt their knowledge and beliefs had changed. Participants discussed general changes to their beliefs, the value of student-centered instructional design, personalization, gender identities and perceptions, and the importance of integrating student-centered classroom practices into instruction, and often referred to components of the intervention as the impetus behind these changes. Offering students choice, choosing diverse resources and activities, understanding the different ways boys and girls learn, and designing lessons to engage both boys and girls were the most noteworthy themes in changes to teachers' knowledge and beliefs related to boys and literacy.

Lesson study has shifted instructional approaches in past studies, as teacher participants have experienced transformations in their viewpoints and instructional practices (Pella, 2011) and indicated that they believed their instructional practice improved after the completion of a lesson study (Chong & Kong, 2012). Coaching a teacher to provide choice and personalization through GRP has improved engagement among male students while modifying that teacher's perceptions of her students (Bristol, 2015). Design study, a variation on lesson study, has also enhanced teachers' pedagogical content knowledge (Oshima et al., 2006). While existing

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research indicates that lesson study can directly influence teacher knowledge in ways that enhance student learning (Lawrence & Chong, 2010), inservice teacher education has had considerable, but variable, impacts on teacher beliefs (Borg, 2011). Given that the act of articulating beliefs makes teachers more aware of the meaning and effects of these beliefs (Farrell & Ives, 2015), lesson study may be one way to encourage this introspection in participants, given that it encourages discussions about how teachers design for their students, and what factors influence those designs. This study's findings related to lesson study are aligned to previous studies' findings.

Researcher-perceived changes to participants' knowledge and beliefs related to boys and literacy were documented in field notes, the researcher's diary, and in personal recollections of the 11 sessions I conducted. While trends in the data including increased awareness of gender differences were sometimes similar to those uncovered during an analysis of the data related to RQ3, there were also unique findings related to RQ4. One of the most notable themes that emerged was greater awareness of the literacy achievement gap between boys and girls among participants, which was not captured by most instruments. I also noticed an emphasis on student choice in several areas, including assessments, texts, and activities, as well as a shift in how some participants approached designing a lesson to engage all students. At times I found it difficult to disentangle knowledge from beliefs. This interrelatedness can be connected to Clarke and Hollingsworth's (2002) interconnected model of professional growth – enaction and reflection processes bidirectionally influence knowledge, beliefs, and practice.

Conclusion

This lesson study-based intervention led to several changes in participants' knowledge and some indication of changing beliefs related to boys and literacy. These changes included

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improved knowledge of boys and literacy as indicated by the KBRI as well as greater focus on student-centered instructional design, and student-centered classroom practice. There were also several researcher-perceived changes to participants' knowledge and beliefs, including greater awareness of the literacy achievement gap between boys and girls, the importance placed on providing students with choice in texts, activities, and assessments, and the value of designing with all students' interests and learning styles in mind.

Chapter 1

Literature Review

“Literacy is...the road to human progress and the means through which every man, woman and child can realize his or her full potential.” – Kofi Annan

This literature synthesis examines factors contributing to the achievement gap in literacy between boys and girls. Bormuth (1973) defined literacy as “being able to respond appropriately to written language” (p. 9), which he described as the ability to employ basic reading and writing skills to gain and give information from a variety of text types. The Organisation for Economic Cooperation and Development (OECD, 2009) provided a more thorough explanation to define reading literacy as “understanding, using, reflecting on and engaging with written texts, in order to achieve one’s goals, to develop one’s knowledge and potential, and to participate in society” (OECD, 2009, p. 14). People with high level literacy skills should be able to “locate and use information that is difficult to find in unfamiliar texts, to show detailed understanding and infer which information is relevant to the task, to evaluate critically, to build hypotheses, to draw on specialized knowledge, and to accommodate concepts that may be contrary to expectations” (Schleicher, 2010, p. 433). More recently, researchers have noted that literacy can be measured by monitoring an individual’s ability to both gather and communicate information using technology (Pilgrim & Martinez, 2013).

Literacy is a critical skill, and poorer literacy achievement has been linked to low self-esteem (Henry et al., 2012), lower lifetime earnings (Park & Kyei, 2011), and less healthy psychological development (M. W. Smith & Wilhelm, 2002). Emergent literacy development, which Piasta (2016) defined as the development of early literacy skills in young children, is one

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predictor of future scholastic success (Invernizzi, Landrum, Teichman, & Townsend, 2010).

Beyond academic development, the ability to read allows individuals to grapple with complex issues and is vital to the continued functioning of a free society (Ippolito et al., 2008). Kwaa Prah (2007) argued that literacy is a requirement for active citizenship in a democracy and suggested that in order “for citizens to meet the challenge of questioning and seeking information on matters affecting them, literacy is crucial” (p. 7).

The National Reading Panel (2000) identified five critical content areas for reading: fluency, phonological awareness, phonics, comprehension, and vocabulary. Invernizzi, Landrum, Teichman, and Townsend (2010) wrote that young readers’ literacy skills can be assessed and monitored by observing skills belonging to three categories: alphabet knowledge, phonological sensitivity, which can be defined as a student’s ability to detect and manipulate “syllables, rhymes, or phonemes” (Lonigan, Burgess, Anthony, & Barker, 1998, p. 294), and print knowledge, which has been defined as a child’s interest in and awareness of letters and sounds in a text (Mol, Bus, & de Jong, 2009).

The literacy gap is one example of an achievement gap, which is a disparity between particular student subgroups in academic achievement (Bacharach, Baumeister, & Furr, 2003). Watson, Kehler, and Martino (2011) defined the gender literacy gap as the degree to which boys’ performance is weaker than girls’ on standardized tests that assess literacy. The gender literacy gap appears to have increased from the 1970s to today (Marks, 2008), and results from the Programme for International Student Assessment (PISA) reading examination indicated that the gender literacy gap was present in every one of the 72 countries tested in 2015 (OECD, 2017). The United States falls in the middle of PISA reading scores with a mean score of 497 on a scale that runs from 347 to 595 (OECD, 2017). Countries with similar scores include Austria, France,

Norway, Poland, and Portugal. Standardized test scores are the most commonly used metric for assessing student literacy progress, so examining the gap between boys' and girls' achievement on these tests reveals the magnitude of the literacy gap. While "black-white¹ and Hispanic-white achievement gaps have narrowed in the last decade or more . . . male-female gaps appear largely unchanged over the same time period" (Reardon, Greenberg, Kalogrides, Shores, & Valentino, 2012, p. 4).

Most achievement gaps including those related to literacy are significantly larger for students in urban areas than for the overall student population (Cartledge, Keeseey, Bennett, Ramnath, & Council, 2016; Teale, Paciga, & Hoffman, 2007). Urban schools and students share several features. They tend to be located in large, central cities, and urban students are more likely to be Black or Latino, participate in free and reduced lunch programs, and score lower on standardized achievement exams than their suburban peers (Jacob, 2007). Teale noted that for urban schools, the achievement gap is a particularly acute issue because "disproportionately high percentages of low-income, African American and Latino children are found in most urban environments" (2007, p. 344). While many urban schools share these characteristics, SSCS is populated predominantly by White students and contains a small free and reduced lunch population, so it does not fit all the typical classifications associated with urban schools.

Problem of Practice

The increase in standardized testing across all grade levels in the United States over the last three decades has shed light on a number of achievement gaps among different subgroups, including between low and higher SES students (White et al., 2016), White and Black students (Mocombe et al., 2017), and male and female students (Cobb-Clark & Moschion, 2017). The

¹ Racial categories are capitalized throughout this paper except when quoted from external sources. In those cases, the author's original capitalization is used.

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achievement gap of interest in this dissertation is the literacy gap between boys and girls, which is present on the first day of kindergarten (Downey et al., 2004), continues through elementary school (Cannon & Karoly, 2007), persists into high school (Brozo et al., 2014), and is similar in size to the overall achievement gap between White and Black students (National Center for Education Statistics, 2012; Persky et al., 2003). In one national study of gender achievement gaps, a gender literacy gap in English language arts (ELA) of roughly 0.23 standard deviations favored girls (Reardon et al., 2018).

The pattern of girls outperforming boys in reading appears in most grade levels for all ethnic groups (LoGerfo, Nichols, & Chaplin, 2006). Large-scale international studies have affirmed the existence of the literacy achievement gap in over 70 countries (Mullis, Martin, Foy, & Drucker, 2012; OECD, 2014). The gender literacy gap has been consistently present since the 1970s (Stedman, 2008) and girls consistently outperform boys on every state reading test given in the United States (Kober et al., 2010) at the elementary, middle, and high school levels (Chudowsky & Chudowsky, 2010). The literacy achievement gap contributes to negative outcomes for boys including higher public high school dropout rates (Greene & Winters, 2006) and a college graduation rate gender gap that has increased over time (Ewert, 2012).

Theoretical Framework

This literature review uses Bronfenbrenner's (1994) nested ecological systems framework to investigate factors contributing to the literacy gap between boys and girls. This framework developed from Bronfenbrenner's belief that the enduring environment in which a child lives is that child's ecology (1974) and utilized Brim's (1975) delineation of micro-, macro-, and mesosystems to describe systems that influence child development. Bronfenbrenner (1979) added the exosystem and chronosystem to Brim's conception of a child's ecology.

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Ecological systems theory is primarily concerned with the conditions and processes that foster human development in authentic human living environments (Bronfenbrenner & Morris, 2007). Bronfenbrenner ultimately proposed an ecological paradigm that stressed that human development occurs when an individual interacts with the environment in which they are situated, and that enduring forms of interactions are known as proximal processes (1994). As the complexity of these interactions increases, so does the individual's capacity for growth (1994). Proximal processes produce and sustain development within the environment of the microsystem (1994).

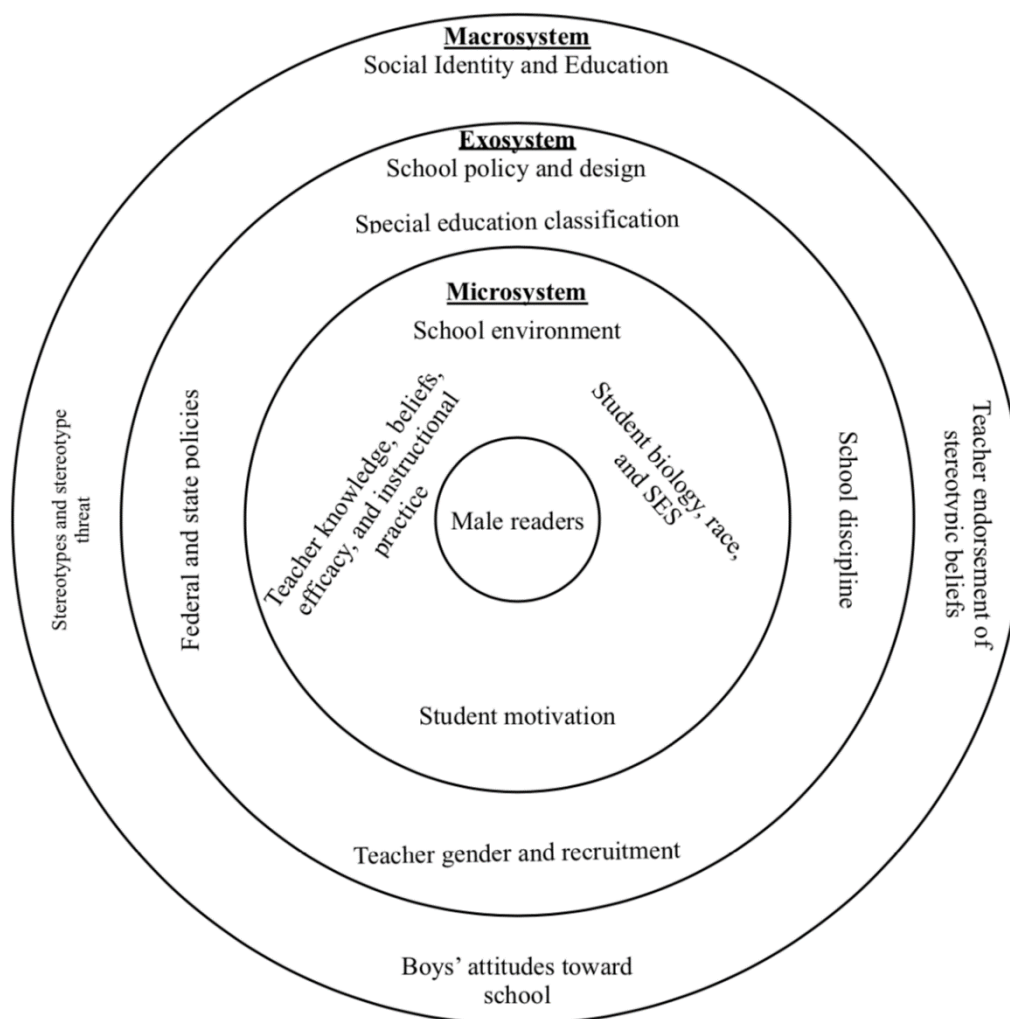
Bronfenbrenner (1979) described the microsystem as an individual's immediate surroundings and further elaborated that microsystems are composed of patterns of activities, social roles, and relationships centered around an individual (1994). The mesosystem was defined as a "set of interrelations between two or more settings in which the developing person becomes an active participant" (1979, p. 209), and macrosystems as the larger context of social and cultural values within which the individual exists. The overarching pattern of micro-, meso-, and exosystems that help define a culture make up the macrosystem (Bronfenbrenner, 1994). An exosystem is a setting in which the developing individual is not an active participant, but events taking place at this system level may either influence or be influenced by social interactions that take place in the setting containing the individual (Bronfenbrenner, 1979). The chronosystem extends the developing individual's environment into time (Bronfenbrenner, 1994). It encompasses not only an individual's development or stasis over time, but also consistency or change to the nested contexts in which the developing individual is situated (Bronfenbrenner, 1994).

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The factors that may contribute to the literacy achievement gap between boys and girls can be grouped using ecological systems theory. For example, cultural factors such as societal construction of identity and students' perceptions of themselves as social beings (Retelsdorf et al., 2015) are part of the broader macrosystem. State and federal school policy can be considered exosystem factors that impact social interactions within a school (Baker, Farrie, & Sciarra, 2016). Interactions between a child's home and school would be considered a mesosystem, though mesosystems will not be addressed in depth in this literature synthesis, which focuses on the microsystem of student-teacher social interaction. The factors that may contribute to the literacy achievement gap between boys and girls are presented in Figure 1.1. Each level of the child's ecology is represented by circles nested within each other. Male students occupy the center circle, as all other ecological systems are organized around these individuals in this study.

Figure 1.1

Factors Contributing to the Literacy Gap between Boys and Girls Based on Ecological Systems Theory



Note: Image adapted from the copyright holder.

Synthesis of Research Literature

This section reviews the existing literature on literacy attainment in boys and girls to provide a more comprehensive understanding of factors related to the gender literacy gap. Macrosystem factors including societal norms for male identity and education, stereotypes, stereotype threat, and boys' shared attitudes towards school may be contributing factors to the

literacy gap between boys and girls, while exosystem factors like special education classification, school disciplinary practices, federal and state policies, and teacher gender are also explored as potential factors. Microsystem factors including individual characteristics, school environment, student motivation, and teacher knowledge, beliefs, efficacy, and instructional practice are also investigated to determine if they are factors in the literacy achievement gap between boys and girls.

Macrosystem Factors

Male identity and education. While there is no one definition of male identity or what it means to be a boy, boys frequently attempt to be “macho” and athletic (Barnes, 2012, p. 241) in order to conform with societal conceptions of masculinity. Further, boys are often positioned as “naturally active, aggressive, and competitive” (Kehler, 2010, p. 353), and these stereotypes are often internalized (Dutro, 2002). It is worth noting that existing research treats the gender achievement gap in literacy as a binary issue between boys and girls. Future research may consider more fluid conceptions of gender but taking a position on this is beyond the scope of this study. This study is informed by research on gender and literacy that treats gender as a binary, and consequently I am addressing a comparison between boys and girls, with the assumption that neither category is monolithic and that there is diversity of literacy preferences and experiences within both categories.

Boys have been considered academic underachievers since the late 17th century (Cohen, 1998). Their academic achievement in comparison to girls has been a public concern since at least the early 20th century (Ayres, 1909), and boys’ rejection of school values has become part of common conceptions of masculine identity (Jones & Myhill, 2004). In the early 1940s, Stroud and Lindquist (1942) wrote that girls exhibited “significant superiority over boys” (p. 665) in

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language, reading vocabulary, and reading comprehension skills, while Samuels (1943) determined that girls were producing higher mean reading scores than boys and concluded that “the girls appear to be somewhat brighter than the boys” (p. 600). Gates (1961), who developed and utilized the Gates Reading Survey to assess reading speed, vocabulary, and comprehension, determined through his testing that on average, girls' reading abilities exceed boys'. Just five years later, Weintraub (1966) wrote that researchers had amassed a preponderance of data indicating that girls outperform boys on reading assessments. Male identity “emphasizes social dominance and achievement in work” (Gambell & Hunter, 2000, p. 693), and boys have reported that reading is not consistent with their conceptions of masculinity (Dutro, 2002; Skelton & Francis, 2015).

Gender is linked to literacy attainment (Frankel, 2016), and the problem of boys' literacy underachievement appears to be persistent and widespread. Lietz (2006a) analyzed 139 studies of student reading achievement conducted from 1970-2002 and determined that there was a pronounced gender gap in favor of girls regardless of age, instructional language, and how the effects were measured, and confirmed in a follow-up study that the gap had grown bigger since 1992 (Lietz, 2006b). Today, gender literacy differences in favor of girls are found in the vast majority of national and international assessments (Logan & Johnston, 2010). Ayres' (1909) conclusion that “our schools as they now exist are better fitted to the needs and natures of the girl than of the boy pupil” (p. 158) is one teachers, administrators, and policymakers continue to grapple with today.

Boys' problems extend beyond literacy, and the “perception that displaying effort and engagement at school is feminine leads to a misfit between boys' gender identity and academic engagement in general” (Kessels, Heyder, Latsch, & Hannover, 2014, p. 220). Gurian (2005)

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painted a grim portrait of the lives of boys in school, noting that boys make up 80% of school discipline problems, 70% of students diagnosed with learning disabilities, 80% of children with behavioral problems, over 80% of students on Ritalin or similar drugs, 80% of high school dropouts, and only 44% of the college population. Froschl and Sprung (2005) added that boys are more likely to be referred to a school psychologist, commit 85% of school violence, and comprise the majority of school violence victims.

Social identity theorists posit that an individual's identity is at least in part derived from their social group (Tajfel, 2001), and that widely held beliefs about social groups influence group members' self-perceptions (Tajfel & Turner, 2004). More recently, sociocultural theories of development based on Vygotsky's (1978) work have produced studies indicating that literacy is a social practice, and that sociocultural influences have an effect on boys' classroom literacy experiences (Scholes, 2017). Bronfenbrenner (1979) defined the macrosystem as the consistency in the form and content of the micro-, meso-, and exosystems of a specific culture, as well as any related belief systems or ideologies, and so social identity formation is influenced by the macrosystem. Boys' learning can be shaped by social and cultural forces including stereotypes and stereotype threat as well as school-oriented attitudes and behaviors typically associated with male students.

Stereotypes. Stereotypes are one force that exerts influence on students in their learning environments (Nowicki & Lopata, 2017). Martin and Halverson (1981) defined stereotypes as a system of categorization that allows an individual to efficiently process units of information, and defined gender stereotypes as "a constellation of traits and roles generally attributed to men and women" (p. 1120). Masculine stereotypes often represent boys as active, aggressive, competitive, and dominating (Legewie & DiPrete, 2012). The impact of stereotyping on boys' literacy

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achievement has been studied since the 1970s, and the conclusions are frequently similar: cultural expectations involve the perception that reading is a feminine endeavor (Downing & Thomson, 1977), and girls are generally identified as the likely readers and writers of stories (Gilbert, 1992). These stereotypes have short- and long-term effects on boys' reading self-concept (Retelsdorf et al., 2015).

Teachers and male students are cognizant of some of the preconceived notions of male literacy ability referenced in the preceding paragraph (Retelsdorf et al., 2015), and children become aware of stereotypes as early as nine years of age (McKown & Weinstein, 2003). Further, children are aware of gender stereotypes related to reading abilities (Plante, Théorêt, & Favreau, 2009), and these stereotypes influence some of the choices boys make in educational environments (Nowicki & Lopata, 2017). Dutro (2001) theorized that, because feminine traits and interests are often devalued by society, boys define themselves in opposition of pursuits they consider more compatible with being a girl.

Many students believe language is a gender-specific interest (Plante et al., 2009). In Plante et al.'s 2009 study, 984 students from middle and high schools were surveyed, and across all grade levels and genders, "students strongly believed that language was a female domain" (p. 400). Additionally, gender stereotypes have proven to be durable: the stereotypes related to the performance gap between boys and girls first appeared in research literature at least 25 years ago (Nowicki & Lopata, 2017). Underrating a subgroup's academic performance has been proven to exacerbate achievement gaps (J. P. Robinson & Lubienski, 2011), and the literacy gender achievement gap remains larger than the mathematics gender achievement gap (Kober et al., 2010). These stereotypes may also be found in the classroom in the form of teacher perceptions

of their students. Internalization of broadly disseminated stereotypes is one factor that may contribute to stereotype threat.

Stereotype threat. Stereotype threat can be defined as a psychological phenomenon in which negative ability stereotypes about a group come to inhibit the academic performance of individual group members (Picho & Brown, 2011). Children as young as five years old are susceptible to stereotype threat (Ambady, Shih, Kim, & Pittinsky, 2001; Désert, Préaux, & Jund, 2009). When students are aware of stereotypes about the subgroups to which they belong but not made aware of different perspectives on academic achievement (e.g. teaching students that intelligence is expandable, or that students often experience difficulties and bounce back), the student group suffers academically (Good, Aronson, & Inzlicht, 2003). Stereotype threat has been shown to negatively affect boys' reading ability (Pansu et al., 2016). In Hartley and Sutton's 2013 study, the authors discovered that girls believe they are superior students to boys from age 4, while boys come to believe the same by age 7. To test the effects of stereotype threat, a group of 168 students aged 7-8 years was informed that girls traditionally outperform boys in school prior to the completion of a reading, writing, and mathematics exam. Boys' performance in reading, writing, and mathematics suffered, while girls' performance was unchanged (Hartley & Sutton, 2013). When 184 boys and girls aged 6-9 years were told they were expected to perform similarly on an exam, boys' performance improved, while girls' performance remained stable.

Publication bias, which Kepes, Banks, and Oh (2014) defined as occurring when "the research identified through a systematic search by the meta-analytic reviewer is a systematically different body of completed research on that particular topic" (2014, p. 184), may have led to an exaggeration of stereotype threat's impact on students (Flore & Wicherts, 2015). However a

significant body of research affirms stereotype threat's existence (Maholmes, 2001) and effects (Lyons, Simms, Begolli, & Richland, 2018). Stereotype threat may be a contributing factor to boys' feelings about themselves in relation to their schooling and is one possible reason boys are more likely than girls to feel negatively about school.

Boys' attitudes towards school. Boys sometimes take pride in not working hard to perform well in school, and overt signs of planning or effort can be viewed as incompatible with masculine identities (Morris, 2008). At least partially as a result of this incompatibility, boys have been more likely to display anti-school attitudes and behavior (Legewie & DiPrete, 2012). Defensive masculinities (Barnes, 2012), oppositional culture (Ivaniushina & Alexandrov, 2018), counter-school culture (Willis, 1977), and anti-school culture (Jonsson, 2014) are some of the terms used by researchers to describe male resistance to schooling. For the purposes of this study, counter-school culture will be used to describe these attitudes and behaviors. These negative attitudes towards school may contribute to boys' poorer performance when compared to girls (Jones & Myhill, 2004).

The use of humor, the application of peer pressure to hinder the completion of assignments, and defensiveness regarding the importance of the work have been identified as key elements of boys' counter-school culture (Jonsson, 2014). One explanation of how these attitudes are generated comes from Ivaniushina and Alexandrov (2018), who explained that "in a school environment socially and ideologically controlled by dominant groups, the subordinate groups create their own counter-culture that defies prevailing pro-school norms" (p. 699). At time of writing, 76% of K-12 public school teachers are female, while 89% of elementary school teachers are female ("Characteristics of public school teachers," 2020). While boys, particularly White boys in affluent areas, are rarely considered subordinate, a study spanning 14 years of data

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indicated that all groups of boys with the exception of Asian Americans are sent to the office or given detention for misbehavior at higher rates than all groups of girls across all grade levels (Wallace, Goodkind, Wallace, & Bachman, 2008), and one study illustrated that teachers overestimate the cognitive capabilities of girls and high-SES students when compared to boys and low-SES students (Brandmiller, Dumont, & Becker, 2020). Boys' out group behaviors are sometimes manifested in literacy classrooms. During an ethnographic study of how boys discuss books in school, Bausch (2007) noted that boys' interjections often indicated their dissatisfaction with the text or what was being asked of them: comments such as "This book is boring" (p. 203), "I never read this [assigned] book" (2007, p. 206), and "I AM NOT READING OUT LOUD!" (2007, p. 211) are indicative of counter-school culture.

Willis (1977) identified a counter-school culture prevalent in working-class boys in his seminal study and identified opposition to authority and resistance to conformity as two of its traits. Girls generally have more positive attitudes towards school (Ivaniushina & Alexandrov, 2018) and boys lag behind their female peers in noncognitive classroom skills including study habits, industriousness, and perseverance (Bertrand & Pan, 2011). Hard work in learning environments is not compatible with "cool" masculinities (Jackson & Dempster, 2009), so studying and excelling at school would, therefore, be considered uncool. In learning environments, stereotypically male behaviors become a method of both protecting one's self-worth (Jackson, 2002) and maintaining one's social status (Morris, 2008).

Exosystem Factors

Policy and design. Forces beyond social and cultural influences have an impact on student learning and outcomes. Bronfenbrenner (1994) explained that exosystems indirectly influence processes within the environment of the developing individual. Exosystem factors

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including federal and state policy, teacher demographics and recruitment, school discipline policy, and special education placement criteria can shape how and where students learn as well as who is teaching them. Brozo (2010) described the American effort to close the gender achievement gaps in mathematics and science:

In our schools, in our families, in communities, and at state and national levels, we applied concerted pressure to help girls do better. We gave girls better role models and heralded the benefits of higher education and the financial independence it brings. We surrounded our girls with support and mentoring. In an effort to improve their outcomes in math and science, we rewrote curriculum to become more girl-friendly and demystified the sometimes laborious process of gaining mastery in those subjects. Using the force of public opinion and the might of the courts, we waged a battle of hearts and minds over the individuals and institutions that would limit the dreams of our young females...The result was nothing short of revolutionary. Girls now make up nearly 60% of the undergraduates in the United States. (p. ix)

As Brozo et al. (2014) noted, despite increasingly frequent media reports and a stream of research affirming the existence of the gender literacy gap in the United States, “a federal response specifically targeted to the gender-based reading achievement gap has not emerged” (p. 590). This is in contrast to the American response to the gender gap in science, technology, engineering, and mathematics careers (Beede et al., 2011).

Federal and state policy. There has been a dramatic upsurge in policymaking related to reading instruction over the last 20 years (Coburn, Pearson, & Woulfin, 2011). While the roots of

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current reading policy efforts may lie in school reform efforts of the mid-1980s that arose in response to the publication of 1983's *A Nation at Risk* (Davenport & Jones, 2005), literacy and reading skills were not addressed at the federal level until years later. In the 1990s, a number of states were offered grants by the Department of Education in exchange for developing results-oriented learning standards in reading and other subject areas (Cusick & Borman, 2002).

By 1998, 36 states had passed or were in the process of passing what Pearson (2004) called “phonics bills,” which he described as “mandating either the use of phonics materials or some sort of teacher training to acquaint teachers with knowledge of the English sound-symbol system and its use in teaching” (2004, p. 229). The federal government became more involved, first with the passage of the Reading Excellence Act (1998), which focused on the development of early literacy skills, improving reading and phonics instruction, increasing the number of family literacy programs, and reducing reading-related special education classifications (Edmondson, 2005), and then with the passage of the No Child Left Behind Act (2002), which demanded that states show that their students are making adequate yearly progress on standardized test performance to remain in good federal standing (G. W. Phillips, 2014).

The Reading First initiative was developed to support the goals of The No Child Left Behind Act (Gamse, Jacob, Horst, Boulay, & Unlu, 2008) and provided \$1 billion-per-year in grant funding to “help all children read at or above grade level by the end of third grade” (Gamse et al., 2008). Its success was assessed primarily through the Reading Comprehension subtest from the Stanford Achievement Test (Gamse et al., 2008). The No Child Left Behind Act has been cited as the legislation that led to the rise of test-based accountability programs (Coburn et al., 2011). While improving student literacy skills was being addressed legislatively, the gender literacy gap was not.

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Other countries have made efforts to address the problem of boys' perceived literacy underachievement. Australian literacy policy reform efforts led to recommendations to make literacy more relevant to boys, make teacher literacy practices more inclusive, and add hands-on components to reading activities (Alloway et al., 2002). The Australian government further developed policy designed to attract more males to the teaching profession (Education Queensland, 2002), which suggested that teacher gender is both a component of gender achievement gaps and an exosystem factor that can be addressed through policy. In Ireland, a national effort to strengthen literacy and numeracy led to the Department of Education and Skills (2011) to release a comprehensive report that urged, among other things, that policy makers and educators "ensure that the curriculum reflects the reading interests of all students, including boys, and allows them to have access to a better balance of text types" (p. 49) and noted that "a lack of opportunity to engage with non-literary texts and other texts in which boys tend to show interest has an adverse impact on the participation and achievement of boys" (p. 51). Additionally, Scotland's General Teaching Council and England's Training Development Agency for Schools have both undertaken efforts to address the issue of school feminization and the relatively low recruitment of men into the teaching profession (Carrington & McPhee, 2008).

Teacher gender and recruitment. Teaching began as a profession dominated by men in the early 1800s until social changes in the late 1800s led to the beginning of a demographic shift (Sedlak & Schlossman, 1986). Men left the profession to become college teachers and school administrators, and the profession became increasingly feminized (Brookhart & Loadman, 1996). By the middle of the 19th century, the teaching force was disproportionately female (Sedlak & Schlossman, 1986). Between 1905 and 1925, teaching became a more popular profession for men, given that salaries in other fields were depressed. Consequently, by the

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1970s, males comprised roughly 30% of the teaching workforce (Sedlak & Schlossman, 1986). Today, the number of male teachers has dwindled as reflected by the NCES data discussed in the previous section. The dearth of male teachers in countries including Australia, Canada, England, and the United States has been linked to the academic underachievement of boys (Cushman, 2007).

There are several possible reasons for the male teacher shortage in the United States. Men entering the teaching profession sometimes confront the perception that they are homosexual, pedophiliac, or sexually deviant (Berrill & Martino, 2002; Moreau, 2014). Salaries for teachers are generally considered low, which may dissuade men from pursuing jobs in the field (Martino, 2008), and the profession's perceived low status may also discourage men from seeking employment in education (Dolton, Marcenaro, Vries, & She, 2018; Mills, Martino, & Lingard, 2004). Further, education may be a fallback or second career for men as a result of some of these challenges, and male teachers are more likely than their female counterparts to plan to exit the classroom to move into education administration (Benton & Benton, 2014; Brookhart & Loadman, 1996).

Recruiting more males into the teaching profession has occasionally been framed as a political issue (Carrington, Tymms, & Merrell, 2008; Martino & Kehler, 2006). Martino (2008) has argued against the importance of male teachers in classroom settings and what he and his co-authors termed the re-masculinization of schools, which encompasses adding male teachers and creating more male-friendly school environments (Martino & Kehler, 2006; Watson et al., 2011), partially because as Mills, Lingard, and Martino (2004) argued, male teacher recruitment efforts “fail to address issues of hierarchical gendered power relationships” and reinforce the “privileges of men and boys at the expense of female teachers and girls” (p. 365). Further, Mills, Martino,

and Lingard (2004) argued that the call for more male teachers is based on the false premise that boys require same gender academic role models, which they perceive to be an anti-feminist position. However, in countries with high levels of gender equality, such as Sweden and Denmark, as well as countries with low levels of gender equality, such as Qatar and Jordan, boys lag considerably behind girls in overall achievement, and specifically reading achievement (Stoet & Geary, 2015).

School discipline. Behavior does not exist solely within the individual, but is rather an interaction between the developing individual and his environment (Safran & Oswald, 2003). Specific behaviors, including violence against teachers or fellow students, lateness, talking during instruction, and talking back to the teacher are likely to lead to school disciplinary actions (Sheldon & Epstein, 2002). Although misbehavior and peer pressure are not exclusive to any gender or subject area, boys are more likely to misbehave during instructional time and be disciplined as a result (Bertrand & Pan, 2011). Boys are also far more likely to be rated by teachers as aggressive, which can be defined as committing an act entailing harm to others (Dodge, Coie, & Lynam, 2007). Additionally, the expulsion rates for high school-aged boys are substantially higher than those of their female peers, and the problem of boys' being disciplined at a higher rate than girls starts as early as pre-school (Froschl & Sprung, 2005). Rafa (2018) explained that 54% of preschool students are boys, yet 79% of all suspended preschool children are male. There is little to no evidence that suspension or expulsion improves student behavior or school climate, but boys continue to be suspended and expelled at rates far surpassing their female peers (Skiba, 2002). Additionally, disciplinary issues are sometimes a factor in special education classifications (Wehmeyer & Schwartz, 2001).

Special education classification. Boys are disproportionately represented in special education programs throughout the United States (Froschl & Sprung, 2005) and dominate the special education programs of some other countries as well (Hey, Leonard, Daniels, & Smith, 1998). The male-to-female student ratio of special education placement in the United States hovers between 2:1 and 3.5:1 (Coutinho & Oswald, 2005). Piechura-Couture, Heins, and Tichenor (2011) identified three potential causes of male overrepresentation: biological factors related to boys' being at risk for specific genetic disorders such as Fragile X syndrome and Klinefelter's syndrome, gender bias in the placement process, and boys being more likely to be active and misbehave during class.

Discipline and special education are intertwined, as some boys find elements of their school experiences including their teachers and assigned texts boring and constricting (Harmon, Stockton, & Contrucci, 1992; Sarroub & Pernicek, 2016), while teachers report having better relationships with girls than boys (McFarland, Murray, & Phillipson, 2016). Boys are more likely to externalize negative behaviors as a result of these and other factors (Olivier, Archambault, & Dupéré, 2018), and those disruptive behaviors can lead a student to qualify for special education services (Annamma, Morrison, & Jackson, 2014). Student behavior and teacher perceptions of student behavior are two critical elements of the special education placement process, and students may be referred for placement in response to teacher biases and levels of tolerance for specific behaviors (Wehmeyer & Schwartz, 2001). Hayden-McPeak, Gaskin, and Gaughin (1993) encouraged teachers and administrators to "consider alternatives to special classroom placement as the first response to preschoolers who exhibit learning, language, or behavior problems" (p. 27).

Microsystem Factors

Student Factors. As components of the teacher-student classroom microsystem in the school mesosystem, students help shape their learning environments and negotiate individual and group identity through speaking, listening, and socializing (Bausch, 2007). Several factors contribute to how students perform and act in a classroom setting including motivation, race, socioeconomic status (SES), and biology.

Motivation. Motivation has been defined as “a psychological construct that refers to the disposition to act and direct behavior according to a goal” (2018). Literacy learning is strongly influenced by a number of motivational factors including task value, self-perceived competence (Gambrell, Palmer, Codling, & Mazzoni, 1996), interests, values, and life-role expectations (Lupart, Cannon, & Telfer, 2004). Poor academic motivation is correlated to higher dropout rates, especially among low-SES students and students of color (L. M. Phillips, Loerke, & Hayward, 2018). Socioeconomic status can be defined as a combination of occupation, education, and income (Heimer, 1997), and low SES is identified in a number of ways, including poverty income ratio (Wang & Zhang, 2006). Students of color is a term that usually includes students who do not identify as White and includes the categories African American/Black, Asian/Pacific Islander, Middle Eastern, American Indian/Alaska Native, and variations of Chicano/Latino/Hispanic (Rankin & Reason, 2005). Regardless of other factors, research has found that girls’ reading motivation levels are consistently higher than those of boys (Durik, Vida, & Eccles, 2006; Merisuo-Storm, 2006), and boys typically assign less value to reading than girls do (Applegate & Applegate, 2010). Girls consistently exhibit statistically significant higher levels of interest in literacy from Grades 1-4 (Chiu, 2018).

Reading patterns and practices are highly gendered and become more gendered as children age into adolescence (Coles & Hall, 2002). Boys prefer outside-of-school texts that

differ significantly from the readings they are assigned in school (Brozo, 2010). For example, boys prefer nonfiction texts and respond positively to the use of digital texts and alternative media (Brozo et al., 2014). They are more inclined to read comic books, magazines, and newspaper articles (M. W. Smith & Wilhelm, 2002). Boys are also motivated to learn for generally different reasons than girls, as they report “earning a great deal of money” and “high status in society” as important factors in their decision making processes, which helps explain their stated preference for potentially high paying science and mathematics careers (Lupart et al., 2004).

Attitudes towards reading. Research over several decades has consistently shown that girls have more positive attitudes towards reading than their male peers (Anderson, Tollefson, & Gilbert, 1985; Askov & Fischbach, 1973; Kush & Watkins, 1996; Ramirez et al., 2019; Swalander & Taube, 2007), and boys’ attitudes towards reading have been cited as a potential obstacle to their literacy development (Brozo, 2010). In their study of boys’ and girls’ attitudes towards reading academic and recreational texts digitally and in print, McKenna, Conradi, Lawrence, Jang, and Meyer (2012) explained that females’ attitudes were more positive towards academic reading in print and digital forms, and were more positive regarding the recreational reading of print. Boys exhibited more positive attitudes in only one of the dimensions: recreational reading in digital settings (McKenna et al., 2012).

Reading attitudes are of particular importance because they can influence student literacy outcomes (Jang & Ryoo, 2018). In a study of student literacy attitudes and their correlation to literacy outcomes, Jang and Ryoo (2018) determined that reading attitudes are significantly predictive of reading comprehension scores. One force behind boys’ more negative attitudes

towards reading may be anxiety, as Ramirez et al. (2019) noted that “boys are particularly vulnerable to the early effects of reading anxiety on later reading achievement” (p. 27).

Race. An overall academic achievement gap between White students and students of color exists across the United States (Jacobson, Olsen, Rice, Sweetland, & Ralph, 2001). The 2017 National Assessment of Educational Progress results revealed the size of the literacy gap between White students and their Black and Latinx counterparts: 27% more White students received proficient ratings than Black students, and 24% more White students were proficient in comparison to their Latinx peers (National Center for Education Statistics, 2017). The only subgroup to outperform White students consisted of students who identify as Asian/Pacific Islander. For most students of color, these gaps extend beyond standardized test scores. Black and Latinx students are more likely to drop out of school, less likely to enroll in Advanced Placement courses, and less likely to enroll in college (Ladson-Billings, 2006). Though recent upward trends in the performance of students of color on standardized reading assessments are positive, they come with a caveat -- when standardized literacy test scores improve, “a smaller percentage of African American, Latino, or low-income students than of white [sic] or non-low-income students will move into the advanced level” (McMurrer & Kober, 2011).

There are disparities in how students of different races and ethnicities are treated in educational settings. Black boys’ underachievement may be linked to the disproportionate amount of punishment they face in schools (Gregory, Skiba, & Noguera, 2010), which may be driven in part by the fact that “non-black teachers have significantly lower educational expectations for black students than do black teachers” (Gershenson, Holt, & Papageorge, 2016, p. 25). Additionally, the specific needs of Black boys are often ignored by teachers, which frequently results in these students being wrongfully placed in special education programs (S.

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Wood & Jocius, 2013). Black male students often struggle to find their places in literacy classrooms (S. Wood & Jocius, 2013) and, like boys in general, often find that their interests are not reflected during reading instruction (Tatum, 2014). These problems may be caused by a lack of Black male voices in both reading classrooms and curriculum design (Tatum, 2005), especially in light of the fact that only two percent of American teachers are Black (Bristol, 2015).

Part of the racial literacy gap may be that Black and Latinx students tend to come from households with poorer home literacy and SES environments, factors known to contribute to poorer academic achievement (Matthews, Kizzie, Rowley, & Cortina, 2010; Teale et al., 2007). More specifically, students from low-SES households spend less time reading and struggle with reading attainment in comparison to their middle class counterparts (McGeown, Osborne, Warhurst, Norgate, & Duncan, 2016). Researchers have identified suggestive relationships between gender and racial achievement gaps (Reardon et al., 2018). Race and gender are components of students' intersectional identities, as is socioeconomic status (Walby, Armstrong, & Strid, 2012).

Socioeconomic status. Student outcomes are closely related to both gender and SES (Auwarter & Aruguete, 2008), and Collins, Kenway, and McLeod (2000) argued that SES makes a bigger difference in student performance than gender, even in ELA. Males from low-income homes are more likely to receive low grades and be required to repeat grades (Sadker, 2002), and students from low SES households tend to have lower achievement levels as measured by standardized test scores (Brown, 1991; Zwick, 2012). Regardless of gender, students from high-poverty households were substantially outperformed by girls from low-poverty households in

reading skills including alphabet knowledge, phonological awareness, and spelling (J. A. C. Lee & Otaiba, 2015).

A student's low SES may influence teacher perceptions, as teachers may expect boys from low SES households to perform particularly poorly (Auwarter & Aruguete, 2008). The effects of SES are not mediated by time: the gap in reading between the least and most affluent children grew as students progressed through their schooling (Aikens & Barbarin, 2008), and boys from low income households are much more likely to perform poorly in secondary school than girls and boys from higher income households (Kingdon, Serbin, & Stack, 2016). Like SES, biological factors can influence teacher perceptions.

Biology. Boys' and girls' brains develop differently, and it has been argued that teaching boys how to read at or around age five is not developmentally appropriate (Sax, 2007). Further, certain brain parts differ in males and females, and some of these differences including asymmetry of subcortical brain structures are likely to influence cognition (Franks, 2019). Lenroot et al. (2007) determined that, in a study of 209 males' and 178 females' brain development, "Robust sex differences in developmental trajectories were noted for nearly all structures with peak gray matter volumes generally occurring earlier for females" (p. 1066). Further, average vocabulary growth from 16-24 months favors girls, as girls progress from a 13-word difference at 16 months to a 115-word difference at 24 months regardless of how much mothers spoke to their children (Huttenlocher, Haight, Bryk, Seltzer, & Lyons, 1991). Based on these disparities, gender differences in early vocabulary growth are indicative of differential literacy capacities between genders at an early age (Klinger, Shulha, & Wade-Woolley, 2011).

Females also have an advantage in visuospatial and verbal abilities that persists beyond early stages of brain development and into adulthood (Reilly, 2012). Women have proven to be

superior in the majority of linguistic skills including verbal fluency, speech articulation, grammatical skills, and the use of more complex and longer sentences (Weiss, Kemmler, Deisenhammer, Fleischhacker, & Delazer, 2003). Similar to SES and race, biology cannot be altered by the developing individual but “biological or genetic does not mean fated” (Beckwith, 1983, p. 172). As the various micro-, macro-, and exosystem factors indicate, an individual’s ability to learn is influenced by factors beyond cognitive and biological development. Of course, a number of factors outside the individual also affect student development and performance, including factors related to teaching and instructional approaches.

Teacher factors. Teacher-student interactions represent a microsystem that occurs primarily in schools but is influenced by the exosystem and macrosystem factors described earlier in this paper. Teacher knowledge, instructional approaches, beliefs, and efficacy are critical elements of classroom instruction and student-teacher interactions, and, as such, influence student literacy and literacy practices.

Teacher knowledge. Teaching is a “highly complex activity that draws on many kinds of knowledge” (Mishra & Koehler, 2006). Teacher knowledge has been defined as a “body of professional knowledge that encompasses both knowledge of general pedagogical principles and skills and knowledge of the subject matter to be taught” (Grossman & Richert, 1988, p. 54). Expectations for teacher knowledge have grown over time to include general themes such as global issues and multiculturalism (Ben-Peretz, 2011). Both practical knowledge, which consists of the routines, procedures, and processes of the teacher, and formal propositional knowledge, which is what the instructor knows about the subject or topic and how he or she organizes and presents the material, are components of teacher knowledge (Verloop, Van Driel, & Meijer, 2001). Although teacher knowledge is related to individual experiences and concepts, it also

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includes elements of knowledge shared by all or many teachers as part of their professional culture and shared practice (Verloop et al., 2001).

Teacher knowledge and training are especially important given the economic and social benefits highly qualified teachers provide (Chetty, Friedman, & Rockoff, 2011). Highly qualified teachers “hold a BA degree, are certified or licensed by the state, and demonstrate subject matter competence” (Jacob, 2007, p. 137), and their presence in the classroom has a host of benefits; students taught by highly qualified teachers are “more likely to attend college, attend higher-ranked colleges, earn higher salaries, live in higher SES neighborhoods, and save more for retirement,” and are less likely to have children as teenagers (Chetty et al., 2011, p. 1).

Shulman’s (1986) work has been influential in the study of teacher knowledge. Shulman (1987) concentrated on the importance of knowledge of content, knowledge of pedagogy, and pedagogical content knowledge, a conception that “exists at the intersection of content and pedagogy” (Mishra & Koehler, 2006). Pedagogical content knowledge encourages the intermingling of content and pedagogy into a larger system of understanding that illustrates how specific elements of subject matter are organized, adapted, and represented for the purposes of instruction (Shulman, 1986).

What teachers know about teaching literacy has been measured in several ways through a variety of data collection methods. Researchers have conducted teacher interviews (Fleming, 2013), collected field notes (Adoniou, 2015), administered pre- and post-writing samples for national adjudication (Dierking & Fox, 2013), analyzed student records (Fitzharris, Jones, & Crawford, 2008), administered surveys (Vesay & Gischlar, 2013), and reviewed self-evaluations (Moats, 2009) to assess various facets of teacher knowledge and its effects on student learning. These studies have sought to determine the knowledge needed to teach reading (L. Wilkinson,

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2005), how that knowledge is acquired (Dierking & Fox, 2013; Vesay & Gischlar, 2013), how to best contextualize that knowledge (Adoniou, 2015; McCutchen et al., 2002), and how to quantify or evaluate that knowledge (Fitzharris et al., 2008).

Several studies offered future directions for researching and improving teacher knowledge. Adoniou (2015) studied 14 first-year teachers and concluded that those teachers lacked knowledge of the sociocultural politics of literacy teaching and school operations and further identified notable gaps regarding content knowledge and knowledge about learners. The author's conclusion that teachers "struggled to deal with the diversity of learners in their classrooms" (Adoniou, 2015, p. 113) is further indication that teaching literacy to an array of unique students can be especially challenging. Martino (2003) discussed the effects of teacher knowledge on instruction and noted that "particular assumptions about 'being a certain sort of boy' inform the pedagogy" (p. 15) of a school in which he was conducting research.

Fitzharris, Jones, and Crawford (2008) conducted six case studies designed to assess teacher knowledge and determined that the acquisition of teacher knowledge was dependent on a number of personal teacher factors including educational background, experience level, coaching experience, and involvement with special education programs. These researchers ultimately recommended the development of a rubric or scale designed to describe characteristics of the desired level of performance across grade levels in order to create an integrated system of assessment, as well as a self-assessment rubric designed to help teachers uncover areas of improvement. Further, the authors recommended that teachers form pairs to deepen their reflections and gain additional feedback during those self-evaluation exercises.

Researchers have also analyzed how teachers can best learn effective instructional strategies for teaching literacy. McCutchen et al. (2002) conducted a comprehensive longitudinal

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study of 492 kindergarten and 287 first-grade students in a total of 43 classrooms and surveyed teacher knowledge about literacy instruction using the Informal Survey of Linguistic Knowledge (Moats, 1994) and a cultural literacy survey developed by Stanovich and Cunningham (1993). They also conducted teacher observations of literacy instruction across the school year and recorded field notes (McCutchen et al., 2002). A total of 44 kindergarten and first-grade teachers were offered a two-week workshop coordinated and conducted by university researchers, the purpose of which was to deepen participants' understanding of phonology, phonological awareness, and their role in balanced literacy. According to the Informal Survey of Linguistic Knowledge given to participants, teachers in the study were not very knowledgeable about English orthography or phonology. After the two-week workshop, participants showed improved knowledge of these literacy concepts, and students taught by teachers who utilized their new knowledge showed greater growth in alphabetic fluency in comparison to those taught by teachers who were not participants. The researchers ultimately concluded that teachers' phonological awareness could be deepened and, critically for my study, that "changes in teacher knowledge and classroom practice can improve student learning" (McCutchen et al., 2002, p. 82). The authors further asserted that improving teacher instruction of alphabetic instruction may improve student learning.

There is variation in teachers' content and pedagogical knowledge. Troyer and Yopp (1990) determined that fewer than one third of 163 responding kindergarten teachers knew the term phonological awareness, which the authors believed was indicative of a gap in teacher knowledge about literacy that could affect instruction. Another researcher used deductive and inductive analyses to investigate the relationship between eight teachers' beliefs and their reading instructional practices (Kuzborska, 2011). Kuzborska concluded that the majority of the

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eight teachers surveyed “reflected a skills-based approach to reading instruction, emphasizing vocabulary, reading aloud, translation, and whole class discussion of texts,” but noted that “a metacognitive-strategy approach is largely supported by research and regarded as most appropriate in academic contexts” (Kuzborska, 2011, p. 102). While the students being taught were first year undergraduates, and therefore older than the subjects discussed throughout this section, the conclusions regarding teacher knowledge are similar to those reached regarding younger students. In another study, Moats (1995) explained that teachers struggled with several important literacy concepts including identifying words with consonant blends, consonant digraphs, and position-based spelling patterns, something she argued might be the result of a missing literacy knowledge foundation.

How teachers obtain their knowledge of instructional practices has also been an area of focus for researchers. Lyon and Weiser (2009) explained that, while teachers are expected to use scientifically based reading instruction in their literacy classrooms, “the majority of the educators included in studies . . . may not possess the level of prerequisite knowledge needed to align beliefs and practices” (p. 479), and recommended that future researchers “identify causal relationships between teacher knowledge and student reading performance” (p. 479). Vesay and Gischlar (2013) surveyed 215 early childhood literacy teachers and determined that teacher knowledge of the five literacy domains (e.g. phonemic awareness, alphabetic principle, fluency, vocabulary and comprehension) was inconsistent. They also noted that teachers most often derive knowledge of these domains through professional development, rather than through preservice programs or inservice training. As a result, they recommended that future researchers consider that “teachers across all classroom settings must receive systematic instruction on how

to implement the strategies within those models and be provided appropriate fidelity instruments to ensure effective implementation” (Vesay & Gischlar, 2013, p. 296).

Teacher beliefs. While teacher knowledge is generally derived from external sources such as professional development programs and preservice training, teacher beliefs can be defined as “teachers’ implicit assumptions about students, learning, classrooms, and the subject matter to be taught” (Kagan 1992, p. 66) and lie “at the very heart of teaching” (Kagan, 1992, p. 85). Beliefs are considered a critical element in teacher learning in the context of language instruction (Borg, 2011).

Belief systems are an important form of cognition, but they are not necessarily logically structured (V. Richardson, 2003). Many teacher candidates come into preservice programs with “deep-seated and often tacit beliefs about the nature of teaching, learning, and schooling” (V. Richardson, 2003, p. 5). Research indicates that many teachers enter the field with a “service motive” in mind (Jantzen, 1981), and in one survey 91% of teachers surveyed believed that by entering the profession, they could “help students gain a sense of personal achievement and self-esteem” and “help youngsters become excited about learning new things” (Book & Freeman, 1986, p. 48). These trends continue today, as the “desire to make a social contribution and work with youth” (P. W. Richardson & Watt, 2016, p. 288) is still cited as one of the primary reasons preservice teachers enter the profession.

While positive motives for entering the profession are common, these beliefs may be part of what Weinstein (1989) termed “unrealistic optimism” (1989, p. 53), and thus could be connected to the persistent belief Weinstein identified among pre- and inservice teachers that interpersonal skills are more important than the academic conventions of teaching. One of the challenges to training teachers is grappling with existing systems of beliefs and knowledge that

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may need to be displaced despite the justifications in place in the preservice or inservice teacher's mind (Nespor, 1987). More recent scholarship refers to these elements as components of teacher knowledge, skills, and dispositions (Brill, 2016; Y. A. Lee & Hemer-Patnode, 2010; Zehms-Angell & Iwai, 2016).

Teacher beliefs and their effects on student literacy have been examined in a number of studies. Hindman and Wasik (2008) administered a teacher literacy beliefs survey to preschool teachers who are part of the Head Start Program. Their work revealed variability in beliefs about phonics instruction among teachers in this subgroup, and the authors concluded that teachers “may have more procedural than conceptual knowledge about some of these topics” (p. 486), which may indicate the importance of distinguishing between knowledge and skills. The authors proposed several topics for future research, including exploring the associations between classroom practices and teachers' beliefs by having teachers read challenging texts with their students, then taking note of how flexibly they use instructional strategies to assist struggling learners in difficult contexts. They also point to the importance of inservice professional development on literacy instruction, which points towards several avenues for future research.

The perceptions and beliefs of teachers can have a substantial effect on student performance and motivation (Boerma, Mol, & Jolles, 2016; Sweet, Guthrie, & Ng, 1998). The influence of the macrosystem of societal beliefs and values on the school microsystem is evident when considering teacher beliefs. Unexamined stereotypes help shape teacher perceptions of and expectations for different groups of students (Sanford, 2005), and it is not uncommon for teachers to fall back on stereotyped gender attitudes that include treating male and female students differently (Constantinou, 2008).

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The framing of academic underachievement as a gender issue in relation to boys may influence teachers' beliefs regarding boys' achievement potential (Jones & Myhill, 2004). Retelsdorf et al. (2015) drew on a longitudinal study covering two years with a sample of 54 teachers and 1,358 5th and 6th grade students to examine the impact of teacher gender stereotypes on students. Three primary measures were examined: reading self-concept, teacher gender stereotype, and reading achievement. After conducting a multilevel analysis of three quantitative data sources, the authors concluded that Grade 6 boys' reading self-concept in Grade 6 was lower for students whose teachers reported high scores for gender stereotypes. They further concluded that teacher gender had no effect on student reading self-concept.

The authors concluded that teachers who indicate high levels of stereotypic beliefs about male students negatively affect boys' reading self-concept. The authors further wrote that negative teacher beliefs about their gender had a negative impact on the boys "over and above their actual performance" (p. 191). This is one of the few studies that considers teacher beliefs about student literacy in a middle school context, but its conclusions are aligned with those of early childhood studies. The researchers concluded that teachers' "beliefs do have consequences and that...[teachers] may be prone to certain biases in their treatment of boys and girls" (p. 192).

The interaction between teacher beliefs and instructional practice is both complex and interactive (Gao, 2014). In their study of the relationship between beliefs and instructional practice, Richardson, Anders, Tidwell, and Lloyd (1991) used a sample of 39 grade 4, 5, and 6 teachers from six elementary schools. The authors used case studies, interviews, and survey data describing teacher beliefs to illuminate the effects of teacher beliefs on reading comprehension instruction, and ultimately speculated that "a lack of relationship between beliefs and practices may indicate that the teacher is going through a change process" (p. 579). Like most of their

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peers, the authors recommended improvements to staff development programs, such as incorporating teacher beliefs and understandings of the teaching and reading process into professional development, as one potential way to improve literacy instruction. Farrell and Ives (2015) conducted a case study of an individual language teacher and concluded that while his professed beliefs were aligned with his teaching in some cases, there were times when there was a disconnect between beliefs and practices. Similarly, Farrell and Lim (2005) concluded that “teachers do indeed have a set of complex belief systems that are sometimes not reflected in their classroom practices” (p. 10).

In his analysis of teacher beliefs about language instruction from the 1960s through the 2000s, Gao (2014) noted that while the subject of teacher beliefs has been examined, there are a number of future directions worthy of exploration. He remarked that “the correlation between teachers’ beliefs and their classroom actions still needs to be investigated further due to the newly emergent and interdisciplinary theories” (p. 51) and pointed to much of the research on teacher beliefs being comprised of case studies and belief inventories. To remedy these gaps in research knowledge, he encouraged teachers to participate in more reflection on their personal beliefs and professional practices.

Most troublingly, there is evidence that students will rise or fall to meet their teachers’ expectations, meaning teachers’ perceptions may be exerting direct influence over their students (McKown & Weinstein, 2002), and additional evidence that teachers underestimate boys’ cognitive abilities in comparison to girls (Brandmiller et al., 2020). Specific gender stereotypes held by teachers about boys’ literacy abilities and girls’ mathematics skills may lead to student anxiety about these subjects (J. Lee, Rhee, & Rudolf, 2019). Teacher perceptions about how students will perform may contribute to gendered patterns of educational and occupational

choices as students grow older (Eccles, 1994). Teacher beliefs encompass a number of components, including beliefs about students (Boerma et al., 2016), instructional methods (Buehl & Beck, 2015), and self-efficacy (Curtis, 2017).

Teacher efficacy. Bandura's (1977) pioneering work on self-efficacy has frequently been applied to students and teachers (Armor et al., 1976; Ashton, 1984; Pajares, 1996). Bandura (1994) defined self-efficacy as "the belief in one's ability to influence events that affect one's life and control over the way these events are experienced" (1994, p. 72) and explained that self-efficacy is concerned with judgements of self-capacity and providing guidelines by which individuals can exercise some influence over their own lives (Bandura, 1997). People's self-perceptions of their efficacy influence their behaviors, thought patterns, and emotional responses (Bandura, 1982).

Teacher efficacy has been defined as "the extent to which teachers believe their efforts will have a positive effect on student achievement" (Ross, 1992, p. 51). Low self-efficacy among teachers is linked to exiting the teaching profession (Glickman & Tamashiro, 1982), low job satisfaction (Caprara, Barbaranelli, Steca, & Malone, 2006), and is likely linked to teacher burnout (Skaalvik & Skaalvik, 2010). Low efficacy also has negative effects on students, as teachers who negatively self-assess their efficacy are more likely to blame students or parents for poor performance (Ashton & Webb, 1986; Thompson, Warren, & Carter, 2004), refer students to special education programs or be resistant to special education inclusion (Meijer & Foster, 1988; Vaz et al., 2015), and are likely to be less effective than their peers (Gibson & Dembo, 1984; Sehgal, Nambudiri, & Mishra, 2017). Like teacher beliefs influence student beliefs, teacher efficacy affects student achievement and student self-perceptions (Caprara et al., 2006), and self-

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concept consistently has been shown to be related to academic achievement (Emmanuel, Adom, Josephine, & Solomon, 2014; Pajares, 1996).

Self-efficacy beliefs appear to matter in the realm of literacy instruction (Tschannen-Moran & Johnson, 2011), and there is evidence that efficacy-focused professional development can increase teachers' beliefs about what their students can accomplish (Timperley & Phillips, 2003). Tschannen-Moran and McMaster (2009) implemented several self-efficacy related professional development strategies and found that the strategies that supported mastery experiences through continued coaching were most successful. Quality supervision, modeling by teacher-educators and master teachers, and ongoing professional development have been proven to have a positive influence on preservice teachers' self-efficacy pertaining to literacy instruction (D. Johnson, 2010; Tschannen-Moran & Johnson, 2011; Yeung & Watkins, 2000).

Summary

This literature review utilized Bronfenbrenner's (1979) ecological systems theory to delve into potential causes of the literacy achievement gap between boys and girls. The literacy gap is illustrated by discrepancies in standardized reading test scores (OECD, 2017), and the factors under examination are parts of students' macrosystems, exosystems, or microsystems.

Macrosystem factors that contribute to boys' struggles with literacy include stereotypes, stereotype threat, and boys' attitudes towards school. Both teachers and students are aware of stereotypes about boys' literacy (Retelsdorf et al., 2015), and these stereotypes influence some of the choices boys make in the classroom (Nowicki & Lopata, 2017). Stereotype threat conditions, such as the belief that one's gender performs poorly on subject tests, have an effect on student performance (C. S. Smith & Hung, 2008) and negatively influence boys' reading performance (Pansu et al., 2016). Boys' attitudes towards education appear to be influenced by social and peer

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expectations (Geven, O. Jonsson, & van Tubergen, 2017; Willis, 1977), and one possible result is that boys' underachieve in comparison to girls (Jones & Myhill, 2004).

Exosystem factors such as federal and state policies, teacher recruitment, school discipline, and special education classification also exert influence on students and their learning interactions. While there has been a considerable increase in literacy policymaking over the last two decades (Coburn et al., 2011), the gender literacy gap remains. The American teaching workforce remains overwhelmingly female (Taie & Goldring, 2017), and there have been virtually no efforts to change that in the United States. While men are underrepresented in the teaching profession, boys are overrepresented in both disciplinary actions (A. Martinez, McMahon, & Treger, 2016) and special education classifications (Froschl & Sprung, 2005; Skiba, Michael, Nardo, & Peterson, 2002).

The classroom microsystem contains student and teacher factors. Socioeconomic status (Chiu & Chow, 2015), race (Gregory et al., 2010), biology (Lenroot et al., 2007), and motivation (Stanovich, 2009) all affect student outcomes (Collins et al., 2000; Klinger et al., 2011; Ladson-Billings, 2006; L. M. Phillips et al., 2018), and these factors have interactions that may further explain some of boys' academic performance issues (Auwarter & Aruguete, 2008). Teacher factors including teacher knowledge (Shulman, 1986), knowledge of instructional practices (Bristol, 2015), beliefs (Riley, 2014), and efficacy (Tschannen-Moran & McMaster, 2009) also help shape how students learn and particularly how they learn to read (Boerma et al., 2016; Roberts, Torgesen, Boardman, & Scammacca, 2008; Shulman, 1986; Tschannen-Moran & Johnson, 2011).

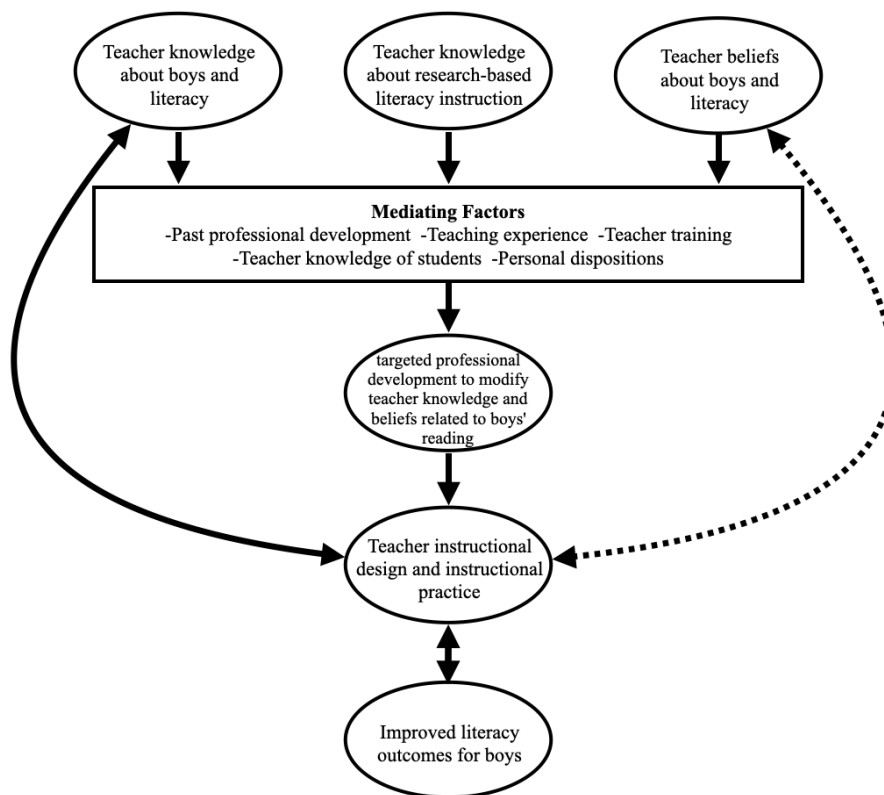
The three factors that are most appropriate and actionable in addressing my problem of practice, which centers on the literacy achievement gap between elementary school age boys and

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girls, are teacher knowledge related to boys and literacy, teacher beliefs related to boys, and teacher knowledge of research-based literacy pedagogy. These factors and their influence on both teacher pedagogy and student-teacher interactions are illustrated in Figure 1.2.

Figure 1.2

Conceptual Framework of the Teacher Factors Influencing Boys' Literacy Achievement



Teacher knowledge and beliefs about boys as well as teacher knowledge about research-based literacy instruction are mediated by a number of factors including their preservice teacher training, history of professional development, and amount of teaching experience. Targeted professional development focused on modifying teacher knowledge and beliefs related to boys' reading may influence teacher instructional design and practice and in doing so improve literacy outcomes for boys. The bidirectional arrow between the ovals related to teacher instructional design and practice and improved literacy outcomes for boys indicates that, as literacy outcomes

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improve, they may inspire additional changes to instructional design and practice. Another benefit of professional development of this kind is that it may generally modify teacher beliefs and is likely to modify teacher knowledge related to boys and literacy, given its focus on these issues.

Teacher knowledge is critical to ensuring that research- and evidence-based instructional practices are being used in the classroom (McCutchen et al., 2002), and there is a negative association between teachers' gender stereotypes and boys' self-concepts of themselves as readers (Retelsdorf et al., 2015). While macrosystem and exosystem factors are critical to developing individuals, the microsystem factors of teacher knowledge of boys, knowledge about research-based literacy instructional strategies, and teacher beliefs about boys are actionable and have a direct influence on daily classroom instruction and teacher-student interactions. In the next chapter, I will describe a needs assessment that explores how these factors function in the context of a Catholic elementary school in a large Northeastern city.

Chapter 2

Needs Assessment

There is empirical evidence that teacher knowledge of their students and research-based instructional strategies can affect student learning (Lyon & Weiser, 2009; McCutchen et al., 2002, 2009), and teacher beliefs affect students' reading ability and self-concept (Retelsdorf et al., 2015). A number of factors contributing to the gender literacy gap were identified in the previous chapter, and several are intertwined with teacher knowledge and teacher beliefs, including the selection of instructional texts (Brozo et al., 2014; M. W. Smith & Wilhelm, 2002), perceptions of boys' motivations and interests (Boerma et al., 2016), and instructional knowledge of teaching literacy (Lyon & Weiser, 2009; Moats, 2014). While a number of researchers have focused explicitly on teacher beliefs and their effects on student performance in reading and other subjects (Miller & Satchwell, 2006; Sorhagen, 2013), few have linked teacher beliefs about gender to students' literacy outcomes, and those who have done so have reported inconsistent results (Hinnant, O'Brien, & Ghazarian, 2009).

This mixed methods needs assessment explores teacher knowledge about literacy instruction and teacher knowledge and beliefs about boys and literacy in the context of a Catholic elementary school in a large Northeastern city, which will be described in greater detail below. The primary factors under examination are teachers' knowledge about teaching boys, teachers' instructional knowledge about research-based instructional literacy strategies, and teachers' beliefs about boys and literacy. The goal of this research is to determine the nature of teacher knowledge about literacy and teacher beliefs about boys and literacy as they relate to the literacy achievement gap for 4th-8th grade Catholic school students.

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Teacher knowledge encompasses the total knowledge that a teacher possesses in a given moment, provides underlying justification for a teachers' actions (Verloop et al., 2001), and for literacy teachers ideally includes knowledge of research-based literacy instructional strategies (Lyon & Weiser, 2009) as well as how specific literacy skills affect children's later reading and writing (McCutchen et al., 2002). For the purposes of this study, teacher knowledge is segmented into two primary components: knowledge of students and knowledge of research-based instructional strategies. Teacher beliefs are reflections of longstanding attitudes, teachers' experiences in education, and what is often described as common sense, as opposed to research-based knowledge about instruction and student motivation (J. C. Turner, Christensen, & Meyer, 2009). Pajares (1992) described beliefs as the best indicators of the decisions people make and further explained that "beliefs teachers hold influence their perceptions and judgments, which, in turn, affect their behavior in the classroom" (p. 307). Teachers hold beliefs about learning, curriculum, assessment, testing, goal orientations, cultural diversity, students' motivation, and a number of other categories (Schraw & Olafson, 2014). While there is little research on how teacher knowledge of their students and research-based instructional practices intermingle with beliefs to affect boys' literacy, literature does exist on interventions designed to influence teacher beliefs and knowledge of students and instructional strategies.

Context of Study

This study took place at St. Stephen's Catholic School (SSCS), an urban Catholic school located in a densely populated Northeastern city. St. Stephen's Catholic School was established in 1923, originally operated by nuns, and primarily attended by children living near the school in their predominantly Catholic neighborhood (McCormack, 2019). The school has changed governance models several times and, like many Catholic school academies in the area, the

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Board of Members comprised of pastors affiliated with the school, Board of Directors consisting of lay people who perform functions including hiring the principal, and principal work in conjunction with teachers and staff to ensure the continued functioning of the institution.

Literacy instruction is provided to all students from kindergarten to 8th grade, and a reading resource room is available to students requiring additional support.

Standardized testing results indicate that the gender literacy gap is prevalent at SSCS. Girls substantially outperform boys on Grades 3-8 state and Terra Nova ELA and Reading assessments, which is consistent with local (Reardon et al., 2018), regional (Kober et al., 2010), national (Snyder et al., 2018), and international (OECD, 2017) trends. More specifically, the Terra Nova Verbal and Reading results from SSCS indicate that boys have performed similarly to their female counterparts twice in nine testing sessions since 2015; every other session revealed a gap between male and female ELA skills attainment.

SSCS is an urban institution, and the gender literacy gap is particularly problematic for urban students, as most existing achievement gaps including those related to literacy are significantly bigger for students in urban areas than for the overall student population (Teale, Paciga, & Hoffman, 2007). St. Stephen's demographics reveal a predominantly White student population. In 2019-20, 184 students identified as White, 43 identified as Hispanic or Latino, 18 identified as Asian, three identified as Black, and one identified as Native Hawaiian or Pacific Islander. During the 2019-20 school year, 23 students qualified for reduced-price lunches, while 28 qualified for free lunches. Boys make up exactly half of the K-8 student body of 250. There are 92 boys in Grades 3-8, the grade range included in this study.

Statement of Purpose

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The purpose of this needs assessment was to understand if and how the factors of teachers' knowledge about boys, knowledge of research-based instructional approaches to teaching literacy, and beliefs about boys play out in my context. To understand if and how specific needs related to teacher knowledge, beliefs, and instructional practices may be associated with the literacy gap at SSCS, the following research questions were explored:

- What do teachers know about literacy and 3rd-8th grade boys?
- What are teachers' beliefs regarding literacy and 3rd-8th grade boys?
- To what extent do 3rd-8th grade English language arts teachers use research-based literacy instructional practices in an urban Catholic school?

Research Design

In order to answer the research questions posed in my needs assessment, I used a convergent mixed methods design (Lochmiller & Lester, 2016) in which quantitative and qualitative data were gathered simultaneously so that the results could be compared as data were collected. I chose a mixed methods approach because the diversity of data sources provided opportunities for triangulation. This approach also made it possible to develop comprehensive insight into teacher knowledge, beliefs, and instructional practices related to literacy regarding 3rd-8th grade boys. Mixed methods researchers "use both qualitative and quantitative research methods to make sense of a research question and/or problem" (Lochmiller & Lester, 2016, p. 87).

Participants

The sample for this needs assessment is composed of four Grades 4-8 ELA teachers in a Catholic school ($N = 4$). Teachers were selected using non-probability convenience sampling (Pettus-Davis, Grady, & Cuddeback, 2011). All four participants are white female ELA

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educators, and while the sample is homogeneous in terms of race and gender, there is some diversity in the experience levels of the participants: one teacher indicated that she had less than one year of experience, another had 8-10 years' experience, the third subject indicated that she had 15-20 years of experience, and the fourth subject had greater than 20 years' teaching experience. One teacher is a reading support specialist, while the others are classroom teachers.

Participant recruitment. Recruitment began with reaching out to the principal of the school and requesting his approval for the use of the school site. Once he formally agreed to allow his site to be used, he shared the email addresses of all the active ELA teachers in his school, and Grades 4-8 teachers were contacted via email to request their participation. All four contacted teachers initially indicated that they would be willing to participate in the survey and quiz, and all four also consented to being interviewed. One eventually asked not to participate in the interview, leaving three participant interviews. Participants were informed verbally and in writing that participation was voluntary and could be terminated at any time, and I provided the principal with an email expressing a similar sentiment and requesting that any participant who approached him should be reminded that participation was not compulsory. Confidentiality was verbally and textually promised to respondents, and Otter.ai, the primary data collection tool used for interviews, was vetted with program leadership before use. All participants took the survey and quiz, while three participated in interviews and two allowed observations to be conducted in their classes.

Measures and Instrumentation

While several of the measures were borrowed from other sources, all were validated using a team of evaluators that included one Grades 6-12 public school ELA teacher with ten years' experience teaching in Catholic schools, one Grades 4-8 Catholic school ELA teacher, one

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Catholic school principal, and one peer in my university's doctoral program in education. Further, all instruments were shared with at least one professor in my university's doctoral program in education and revised based on the feedback of the researcher's advisor. Evaluators were provided with the instruments in a shared Google Doc and asked to comment on the questions. Interview questions were read over the phone or in person to assure written and spoken clarity. Once feedback was collected, instruments were revised and re-shared. Revisions were made until all four evaluators had no further feedback, at which point the instruments were shared with both course professors and the researcher's advisor. Additional feedback was then provided and incorporated into the instruments.

Knowledge about Boys and Reading Instruction Survey (KBRI). Teachers' knowledge levels of reading instruction can be operationalized as pedagogical principles and skills as well as the content knowledge that a teacher has regarding reading instruction (Grossman & Richert, 1988). Fleming's (2013) KBRI survey (Appendix A) contains questions that "were derived from research that examined gender learning needs, differences in reading and reading instruction, and the perspectives of teachers concerning these topics" (p. 38). The answers to the questions were validated through research, and all questions, answers, and sources for answers were shared with my advisor and peer reviewers prior to the survey's distribution. There are three question types on the survey: five demographic questions that contain checkboxes for multiple selections, 14 true/false prompts, and five multiple-choice prompts. Validity of the KBRI survey was originally established through a peer review process initiated by its creator (Fleming, 2013) that included four experts and a survey research consultant reviewing the items. Further validation through an evaluation panel took place as part of this needs assessment.

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The purpose of this survey is to develop an understanding of teacher knowledge about boys and reading instruction, including their perceptions of boys' attitudes and motivations towards reading, conceptions of children's gender identity, and scholastic areas of strength. The first group of survey questions are true/false questions, while the second section contains multiple-choice questions. Examples of true/false question types include, "In elementary and middle school, boys score significantly higher than girls on the Texas mathematics and science assessments" and, "Boys make up the majority of students served in special education." One multiple-choice question is, "When student scores on standardized tests are compared based on gender, female students generally score higher than male students in which of the following content areas?" with the following response options: a. Art, b. Language Arts, and c. Math. Another asks, "____ are most likely by middle school to be grade repeaters or to dropout" and has the response options "a. Males, b. Females, and c. Neither a male nor female majority".

Several changes were made to the survey based on peer review feedback, and all revised instruments were subjected to the same peer review process as the original instruments. The original survey consisted of five demographic questions, 15 true/false questions, and six multiple-choice questions. I modified three of the demographic questions specific to Fleming's context. True/false questions were also modified based on the feedback of the peer review committee I assembled to validate the instruments. The seventh true/false question was deemed "confusing" and "complicated" by two of the individuals asked to validate the survey, so the phrasing was revised and tested again, at which point the reviewers indicated that the question was understandable. The first multiple-choice question contained a reference to a standardized Art test; since the state in which the needs assessment took place does not administer any standardized Art examinations, that reference was changed from Art to Mathematics. References

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to Texas were also changed to the state in which this research is being conducted. One question was removed entirely. The question, “Gender achievement gaps in math and reading have widened in the last ten years” (Fleming, 2013, p. 103) is ambiguously phrased and could be answered in a number of ways depending on student age, school enrollment, and the specific subject being discussed, as mathematics and ELA gender achievement gaps are not correlated. The five remaining multiple-choice questions were not modified.

Beliefs about Boys and Reading Instruction Survey (BBRI). Teacher beliefs about reading instruction consist of teachers’ assumptions about the subject matter, teaching, pedagogy, and learning as it relates to boys (Vesay & Gischlar, 2013), and can be operationalized as a teacher’s “expectations of finding gender differences in achievement generally, in language ability specifically, and in classroom response and behavior” (Alloway et al., 2002, p. 552). The BBRI (Appendix B) is a “survey of primary-school teachers’ beliefs about the issue of boys and literacy, including their views of appropriate and effective programs, strategies and classroom organisation” (p. 17) developed by Alloway, Freebody, and Muspratt (2002) and adapted for Fleming’s (2013) dissertation. This instrument probes teacher beliefs with opinion-based questions and a Likert scale ranging from 1 to 5, with 1 representing strong disagreement and 5 representing strong agreement, provided for responses. There are a total of 15 prompts included in this instrument. Fleming (2013) conducted a confirmatory factor analysis to verify concurrent validity with this survey, which was developed by the Australian Department of Education.

This instrument is intended to probe teacher beliefs and perceptions and asks teachers their opinions on a number of issues related to boys’ literacy including how teacher gender affects how boys learn to read, whether the biology of the male mind differs from the female

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mind, and what boys prefer to read in school. The purpose of using the BBRI echoes its use by the researcher who developed and utilized this instrument (Fleming, 2013), as she also sought to examine teacher beliefs about boys' literacy. Because it is an assessment of beliefs, there was no need to validate response options for the BBRI, as there are no correct or incorrect responses. Examples of prompts include, "If there were more male teachers in elementary schools, boys' literacy learning would improve," "Boys' behavior at school significantly affects their levels of reading achievement," and, "Boys often think that reading activities are more appropriate for girls and women."

Few changes were made to this instrument during the validation process. A reference to the compulsory age of entrance for school was added to indicate that the survey was being given in the state in which the study was conducted. One prompt was removed entirely because two peer reviewers expressed reservations about the clarity of the terms used. In the prompt, "Some groups of boys have lower literacy levels than others," one reviewer suggested that the phrase "groups of boys" was unclear, and another suggested that "lower literacy levels" was vague and should be expressed as something more concrete. That peer reviewer suggested changing "have lower literacy levels" to "do not perform as well as others on standardized tests," but the question was removed, as it did not meet the standards of the peer reviewers.

Balanced Literacy Classroom Activity Observation Form. Research-based literacy instruction involves teachers making pedagogical and instructional decisions using their professional experience and wisdom integrated with the best empirical evidence available to them (Gambrell & Morrow, 2014). The specific instructional approach being used as guidance for classroom observations is the balanced literacy framework (California Department of Education, 1996). A balanced literacy approach can be operationally defined as a "philosophical

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orientation that assumes that reading and writing achievement are developed through instruction and support in multiple environments in which teachers use various approaches that differ by level of teacher support and child control” (Frey et al., 2005). Balanced literacy represents a middle ground between approaches to literacy that stress meaning making and those that stress word recognition (Lombardi & Behrman, 2016).

The Balanced Literacy Classroom Activity Observation Form (Appendix C) was designed to assess whether balanced literacy practices were being used during classroom reading instruction (Frey et al., 2005). The authors used the form to “collect information about targeted classroom literacy activities, use of accountable talk, teaching strategies, and instructional time spent on phonemic awareness and concepts of print” (Frey et al., 2005, p. 274). The form was designed for the observers to use a partial interval recording format that divided instruction into 45 second intervals. The authors computed an index of reliability based upon the percentage of agreement between pairs of observers, thereby using inter-rater reliability as the principle metric for determining overall reliability (Frey et al., 2005).

The purpose of the rubric is to determine whether research-based balanced literacy practices are being used during reading instruction. The observation rubric is broken down into ten categories: Read aloud/modeled reading, shared reading, interactive reading, guided reading, independent reading, write aloud/modeled writing, shared writing, interactive writing, guided writing, and independent writing. Table 1.1, the construct table below identifies the operational definitions of key balanced literacy activities and strategies. The table’s creators assembled an evaluation team consisting of implementers of a district-level balanced literacy program, university researchers, and program directors to assist in the development of an operational dictionary of balanced literacy components.

Table 1.1*Operational Definitions of Key Balanced Literacy Activities and Strategies*

Activity	Working definition	Observable, concrete example
Guided reading	Teacher supports the development of effective strategies for processing novel texts at increasingly challenging levels of difficulty.	A small group of students read silently or aloud with the teacher from their own copy of the text. Students do most of the reading and the teacher guides students.
Independent reading	Students read a text to themselves without support or instruction.	Students engage in sustained silent reading during seatwork time.
Independent writing	Students write independently, in pairs, or in small groups, usually on a topic of their choosing.	Students write in individual journals or compose stories. Does not include the use of worksheets.
Read aloud	Teacher reads a copy of the text to a large group of students.	Teacher sits in front of the whole class with a book and reads to the class. Only the teacher has a copy of the text.
Shared reading	Teacher reads aloud with a large group of students. Students either have their own copy of the book or can see the shared big book.	Teacher and the whole class read a common text together while the teacher emphasizes rhyming words. Broad skills may be worked on.
Accountable talk	Talk that reflects or encourages accountability to the learning community, to accurate and appropriate knowledge, and to rigorous thinking.	Teacher encourages students to look at the speaker, clearly state their questions and responses, or use textual details to support their interpretation of a story.
Conferencing	A time when the teacher and student, or student peers, discuss a goal or assignment in the context of balanced literacy activities.	Teacher, students, or both, participate in pre-reading or pre-writing conferences, editing conferences, or book discussion conferences. Can occur during independent reading and writing.
Pair and share	Students divide into pairs and share ideas, answers to questions, or their work.	Class splits into pairs to discuss elements of a story or make predictions on what will happen next.
Predictions	A teaching strategy in which students are asked to guess what will come	Teacher asks students to discuss what they think will happen in a story by

later in the text.

only examining the cover.

Note. Information is from Frey, Lee, Tollefson, Pass, and Massengill (2005)

No modifications were made to this instrument, as it has been previously used by researchers in classroom observations of balanced literacy, and changes were not suggested by my peer reviewers.

Semi-structured teacher interviews. Four interview questions were adapted from Alloway, Freedbody, Gilbert, and Muspratt (2002) and were focused on the constructs of teacher knowledge of boys and literacy, knowledge of research-based instructional strategies, and beliefs about boys and literacy (Appendix D). Questions were developed based on extensive research during which the authors examined boys' and girls' literacy performance, analyzed the hypotheses presented by other researchers about the gender literacy achievement gap, and collected the various recommendations offered to schools and educators on how to improve literacy outcomes for boys. The authors wrote that their interview questions "allowed for respondents to provide open-ended comments on the key issues concerning the possible sources of boys' difficulties in literacy learning and what may be done about that" (2002, p. 75).

Interview questions were intended to elicit responses from teachers about the differences in how to approach literacy for boys and girls, and to discuss the efficacy of different instructional strategies for students of each gender, and these questions were used as intended by their developers. The small number of interview questions were intended to provide space for respondents to provide detailed responses to the questions and follow up questions were utilized as needed. Interview questions included, "Could you comment on whether particular boys and girls appear to struggle with the literacy requirements of schools? Do they appear to have particular characteristics?" Another question asks about instructional strategies helpful to both

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boys and girls: “What particular teaching-learning strategies have you found to be successful in improving literacy outcomes for both boys and girls?”

Small modifications were made to the interview protocol based on feedback from peer reviewers and a professor with subject area expertise in literacy. Recommended changes were minor: two questions were combined into one question with two components, and a verbal message was appended to the beginning of the interview that reminded interview subjects to avoid using student names. Most critically, questions were modified to include the request for specific examples of instructional outcomes that improve literacy learning for boys and girls. All the suggested changes were made, and the instrument re-validated by the same group of evaluators who recommended the changes.

Procedure

This study investigated three constructs: teacher knowledge of reading instruction for boys, teacher beliefs regarding reading instruction for boys, and the use of research-based literacy instruction. Several data collection methods were used during this needs assessment, including a survey, semi-structured interviews, a quiz, and a classroom observation rubric. A survey is a way to gather information from a selected group of individuals (De Leeuw, Hox, & Dillman, 2008). Surveys involve “identifying a specific group or category of people and collecting information from some of them in order to gain insight into what the entire group does or thinks” (De Leeuw et al., 2008, p. 1), while interviews “provide in-depth information pertaining to participants’ experiences and viewpoints of a particular topic” (D. W. Turner III, 2010, p. 754). Wragg (2012) noted that classroom observations consist of “systematic teacher appraisal and lesson evaluation” of teaching practices and the lesson designed to be taught (pg.

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2), can be done qualitatively or quantitatively, and are usually recorded in writing or on video or audio tape.

This mixed methods study utilized four data collection instruments: semi-structured telephone interviews, the Knowledge about Boys and Reading Instruction Survey (KBRI), the Beliefs About Boys and Reading Instruction Survey (BBRI), and the Balanced Literacy Classroom Activity Observation. All instruments except for the Balanced Literacy Classroom Activity Observation were validated through a peer review process. Instruments were shared via Google Drive with a Catholic school elementary principal, an ELA teacher who taught Catholic school students ELA from Grades 6-8 and teaches public school students ELA from Grades 9-12, an ELA teacher who taught Catholic school students ELA from Grades 3-6 and public school special education students ELA from Grades 6-9, and an instructional coach at a charter school for the purposes of validation. KBRI responses had been validated by the Australian researchers who developed the instrument but needed to be revalidated for use in American research. A valid answer source was found for all but one of the multiple-choice questions, which I removed as a result. That question asked how familiar participants were with boys and literacy instruction, and responses ranged from “unfamiliar” to “I could teach the class.” Given that the purpose of the KBRI was to assess correct answers on a brief quiz about boys and literacy, this question was not necessary. The Balanced Literacy Classroom Activity Observation has been used by researchers in the past for classroom observations (Frey et al., 2005), and no modifications were made to the instrument for use in this study.

Data collection. Both the KBRI quiz and BBRI survey were created in Google Forms and distributed via hyperlinks within email messages. Participants were notified that the surveys were available to be taken through an email sent to them, and their responses were captured in

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Google Sheets spreadsheets. Two follow up emails were sent asking participants who had not yet done so to complete the survey and quiz. Once the participants completed the survey and quiz, the data was extracted as comma separated values and input into the IBM SPSS Statistics software version 22.0.0.0. Once input into the SPSS software package, data could be analyzed quantitatively with a focus on descriptive statistics and frequency.

Interview questions were developed through the examination of instruments previously used in similar studies. Interviews were conducted over the telephone and recorded and transcribed by Otter.ai, and a backup recording was created using QuickTime Player version 10.5. Field notes were also taken during the interview process to allow for the bracketing of information of particular interest to me. Interviews were semi-structured to allow for the participants and researcher to delve more deeply into questions of particular interest, and to help gain deeper insight into responses offered by participants. Interview transcripts were ultimately coded through a multistage analytic process described in greater detail in the data analysis section of this chapter.

Classroom observations were conducted remotely and asynchronously. Two ELA classes were recorded on an iPad set up in the front of the classroom, then digitally shared with me via Google Drive. Student faces were not included in the recording. The duration of each lesson recording was between 15 and 20 minutes. The instrument used for observation analysis was the Balanced Literacy Evaluation Project Classroom Activity Observation Sheet (Frey et al., 2005), which provided an interval-based method of lesson evaluation.

Data analysis. Quantitative and qualitative data were analyzed simultaneously, which is consistent with a convergent parallel design. For the KBRI quiz and the BBRI survey, both of which are quantitative instruments, descriptive statistics including mean, standard deviation, and

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minimum and maximum values were noted, and response frequencies were analyzed. The analytic process was aided by the use of SPSS software, which allowed for the immediate calculation of the relevant statistics. Results were input into tables that are contained in this chapter (see Tables 2.1 and 2.2 below). For the KBRI quiz, the number of respondents answering each question correctly as well as the total number of correct responses to specific questions were calculated, while BBRI responses were coded by analyzing teacher responses, from strongly disagree to strongly agree, and quantifying both the total number of participants who agree or disagree with a statement as well as individual participants' responses to each belief statement.

An a priori coding methodology was used to develop a codebook based on the semi-structured interviews, and broader themes emerged from this coding process (Saldana, 2015). This multistage analytic process began with the establishment of three themes under which emergent codes would be nested, followed by the in vivo coding of interview responses. After all responses were initially coded, codes were grouped into categories, and categories were grouped under the pre-established themes. These themes would ultimately be used to discern broader shared themes that span across the data collected from the qualitative and quantitative instruments used.

The Balanced Literacy Evaluation Project Classroom Activity Observation Sheet breaks lessons down into 45 second increments. Each minute, the researcher checked a box to indicate whether a specific component of balanced literacy instruction was in evidence. Multiple boxes could be checked in the same minute-long interval if multiple balanced literacy strategies were used during that time. Both recorded lessons were watched twice, and a peer reviewer who

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works as a teaching coach watched and coded the lessons using the Balanced Literacy Evaluation Project Classroom Activity Observation Sheet for the purposes of interrater reliability.

The use of multiple data sources that collect data that often overlaps is one strategy to ensure data triangulation (Lochmiller & Lester, 2016). Teacher beliefs about boys and literacy were assessed through semi-structured interviews as well as the BBRI survey instrument. Teacher knowledge about boys and literacy was interrogated through the use of two instruments: the KBRI quiz and semi-structured interviews. Finally, the use of research-based instructional strategies was primarily assessed through observations conducted using the Balanced Literacy Evaluation Project Classroom Activity Observation Sheet. While the semi-structured interview questions did not include a specific question about research-based instructional literacy approaches, each participant did discuss the strategies they learned through teacher training and professional development.

The first research question, which centered on teachers' knowledge levels of reading instruction for 3rd-8th grade boys, was addressed by the KBRI quiz. The second research question, which focused on teachers' beliefs regarding reading instruction for 3rd-8th grade boys, was addressed by the BBRI survey and semi-structured interviews. The third research question regarding the extent to which 3rd-8th grade ELA teachers use research-based literacy instruction in an urban Catholic school was addressed by the Balanced Literacy Evaluation Project Classroom Activity Observation Sheet and semi-structured interviews.

Findings and Discussion

The survey, quiz, interview, and observation data provided valuable information about the needs in this context. Teacher knowledge related to boys and literacy was not always accurate, and a disconnect between existing research about boys and literacy and teacher beliefs

about the topic emerged at times. Further, classroom observations did not always reflect the integration of research-based literacy instruction into instructional contexts.

Findings Related to Teacher Knowledge Levels of Boys and Literacy

Quiz. The results of the KBRI indicate that teacher knowledge about reading instruction for boys is inconsistent. Of the 15 true/false questions administered on the KBRI, 22.2% ($N = 4$) four were answered correctly by all respondents. Prompts related to gender differences in literacy in high school, the mathematics and science gender gaps, gender identity in early childhood, and differences in comprehension levels for boys and girls appeared to be the most challenging for the teachers surveyed. There appears to be no correlation between teacher knowledge and teacher experience based on the results of the KBRI. All teachers sampled answered more than half of the questions correctly, and all but one responded incorrectly to at least five questions. Taken together, 70.8% of teacher responses were correct.

All the teachers surveyed understood that the literacy gap between boys and girls exists, but half also believed that boys consistently outperformed girls in our state mathematics and science assessments, which is no longer true. Surveyed teachers were generally knowledgeable regarding special education classification for boys and discrepancies in the cognitive abilities of boys and girls. None of the teachers surveyed knew that, despite their struggles in reading classes or during reading instructional time, boys are still more likely to call out and participate during those times. Table 2.1 presents the findings related to the administration of the KBRI. There was considerable variability regarding participant knowledge related to boys and literacy.

Table 2.1

Teacher Responses to the KBRI

Prompt	Teacher 1	Teacher 2	Teacher 3	Teacher 4	% of correct
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					responses
Experience range in years	>20	8-10	15-20	1 or less than 1	
Gender achievement gaps in reading tend to equal out in high school.	Incorrect	Correct	Correct	Incorrect	50
Elementary school-aged girls score higher than elementary school-aged boys do on State ELA assessment.	Incorrect	Correct	Correct	Correct	75
High school-aged boys score higher than high school-aged girls do on ELA assessment.	Correct	Correct	Correct	Correct	100
In elementary and middle school, boys score significantly higher than girls on State math and science assessments.	Correct	Correct	Incorrect	Incorrect	50
In elementary school, boys are more likely to be retained than girls.	Correct	Correct	Correct	Incorrect	75
Boys make up the majority of students served in special education.	Correct	Correct	Correct	Correct	100
In tests for various cognitive intelligences, boys tend to score higher on spatial tests and	Correct	Correct	Correct	Correct	100

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girls tend to score higher on verbal tests.

Gender gaps in achievement have been proven to exist across racial/ethnic groups.	Incorrect	Correct	Correct	Correct	75
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Boys and girls come to school equally prepared in reading readiness skills.	Incorrect	Correct	Correct	Correct	75
-----------------------------------------------------------------------------	-----------	---------	---------	---------	----

Boys value reading as an activity less than girls do.	Correct	Correct	Correct	Incorrect	75
-------------------------------------------------------	---------	---------	---------	-----------	----

Girls tend to comprehend expository text better than boys do.	Incorrect	Correct	Incorrect	Correct	50
---------------------------------------------------------------	-----------	---------	-----------	---------	----

Boys are more likely to be involved in a disciplinary infraction at school.	Correct	Correct	Correct	Incorrect	75
-----------------------------------------------------------------------------	---------	---------	---------	-----------	----

Children bring their gender identities with them on the first day of preschool.	Incorrect	Correct	Incorrect	Correct	50
---------------------------------------------------------------------------------	-----------	---------	-----------	---------	----

Boys will resist reading stories about girls more than girls resist reading about boys.	Correct	Correct	Correct	Correct	100
-----------------------------------------------------------------------------------------	---------	---------	---------	---------	-----

When student scores on standardized tests	Correct	Correct	Correct	Correct	100
-------------------------------------------	---------	---------	---------	---------	-----

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given across the country are compared based on gender, female students generally score higher than male students in which of the following content areas?

_____ students tend to “call out” and participate more in the reading classroom.	Incorrect	Incorrect	Incorrect	Incorrect	0
_____ are most likely by middle school to be grade repeaters or to dropout.	Incorrect	Correct	Incorrect	Incorrect	25
Which of these is not a gender-friendly reading instructional strategy?	Correct	Correct	Correct	Correct	100
% answered correctly:	55.6	94.4	72.2	61.1	70.8

Findings Related to the Teacher Beliefs about Boys and Reading Instruction

BBRI survey. There was inconsistency in several teacher beliefs as indicated by Table 2.2. Teachers’ beliefs differ regarding whether educators need to understand more about male culture to improve reading instruction for boys and whether boys’ behavior at school significantly affects their levels of reading achievement. Most surprisingly, there was not a consensus response to any question about teacher beliefs. Responses varied considerably among respondents.

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In responding to the prompt “Many current teaching practices in literacy classrooms are not conducive to boys’ literacy learning style,” teacher responses were not consistent and ranged from moderate agreement to strong disagreement. Teachers did consistently believe that gender can be a factor in a student’s approach to reading and that if schools adopted different assessment practices, boys’ reading achievement results would improve. Table 2.2 presents teacher responses to the BBRI survey instrument. Each question on the survey is presented in the first column. The minimum and maximum value out of the five-point scale each response has been recorded in the table as well as the average of all participants’ responses. Additionally, standard deviation of responses has been calculated and provided in the last column.

Table 2.2

Teacher Responses to the BBRI

Prompt	Minimum	Maximum	Mean	Std. Deviation
There are not enough books of high-interest value to boys available in schools.	2.0	3.0	2.250	.5000
There has been a lack of focus on boys’ education over the last two decades.	2.0	4.0	2.500	1.0000
If there were more male teachers in elementary schools, boys’ literacy learning would improve.	2.0	3.0	2.750	.5000
Boys prefer to read non-fiction to fiction.	2.0	4.0	2.750	.9574

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Boys often think that reading activities are more appropriate for girls and women.	2.0	3.0	2.750	.5000
Many current teaching practices in literacy classrooms are not conducive to boys' literacy learning style.	1.0	4.0	2.750	1.2583
Teachers need to understand more about male culture to improve reading instruction for boys.	2.0	4.0	3.000	.8165
Boys are not ready for school at the compulsory entry age, which is six years in this state.	2.0	4.0	3.000	.8165
The way that boys' brains develop accounts for literacy learning differences.	3.0	4.0	3.250	.5000
Boys' behavior at school significantly affects their levels of reading achievement.	2.0	5.0	3.500	1.2910
Boys prefer technological forms of literacy to print-based forms of literacy.	3.0	4.0	3.500	.5774
Boys often tend to be less engaged than girls during reading instruction.	3.0	4.0	3.500	.5774

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If schools adopted different assessment practices, boys' reading achievement results would improve.	3.0	4.0	3.750	.5000
Some groups of boys have lower reading levels than others. Groups may include be racial, ethnic, socioeconomic, or based on a criteria specific to your school.	3.0	4.0	3.750	.5000
Gender can be a factor in a student's approach to reading.	3.0	4.0	3.750	.5000

Interviews. Three individual interviews were conducted, and responses reinforced several conclusions derived from survey data, including the belief that boys struggle with literacy more than girls do, and that classroom libraries are often not providing high interest texts for boys. Interview data were coded through a multistage a priori in vivo coding process that began with the broad categories of teacher knowledge about students, teacher knowledge about research-based literacy instruction, and teacher beliefs about students. Key phrases were highlighted, then color coded based on whether the phrase related to teacher knowledge of boys, knowledge of research-based literacy instruction, or beliefs about boys. All codes were then grouped under one of the predetermined a priori themes, and codes from each interview were combined to determine what if any overarching themes emerged through the comparative analysis of interview responses.

Several codes of interest emerged during this process. One example of this is the vocabulary development code. Respondents noted that Grade 4-8 girls seemed to exhibit larger vocabularies than their male peers. Respondents also occasionally directly contradicted one

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another's responses, such as when one teacher noted that girls benefit more from direct instruction while another stated that boys generally excel when provided with direct instruction. These responses indicate that within the context of SSCS, teacher beliefs are not always consistent. An example of the coding process is provided in Figure 2.1. Knowledge related to boys as well as specific beliefs about boys were highlighted in pale blue. Knowledge related to girls and specific beliefs about girls were highlighted in pale pink. Instructional strategies were highlighted in blue if they were directly related to boys and red if they related to girls. Phrases and words of general interest that could not be easily coded into one of the a priori categories were highlighted in yellow for further review. After the initial color coding process, each code was assigned to one of the existing a priori categories of teacher knowledge about boys and girls, teacher knowledge about instructional literacy practices, and teacher beliefs about boys and girls.

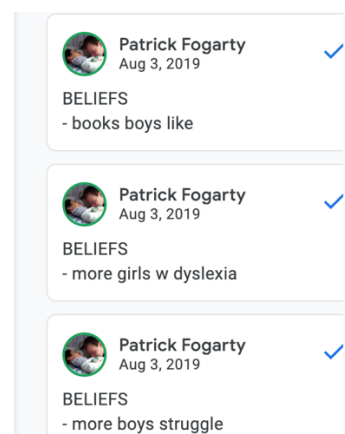
Figure 2.1

Example of In Vivo Color-Coding Process

1. Could you comment on whether particular boys and girls appear to struggle with the literacy requirements of schools? Do they appear to have particular characteristics? Please do not provide student names in your response.

Difficult question for her. She's had children from both genders struggle. The boys...how do I say it...the boys may be more a lack of interest, or interested in other things. **If I could give them sports to read, they didn't struggle as much.** But, just my experience, I've had more girls with dyslexia. I have had a fair number of boys with vision problems that affected their reading. May have picked up on it **bc my** sister has issues there. I told their moms to go for vision testing.

Follow up: Do you see more boys or girls struggling? **I guess I'd say boys**, but by a small majority. And honestly, in my experience, it has more to do with **whether their families were readers or not.** The boys I've had who really struggled to read were ones who no one read at home to. They didn't find it pleasurable at all. Sports-oriented school - they **tend to be more physical**



Several themes related to teacher beliefs emerged in most or all of these interviews. All three respondents referenced boys requiring or desiring physical activity more than their female peers and noted the importance of providing boys with high interest books. How to best engage boys was also a frequent topic of discussion, and respondents recommended strategies ranging

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from incorporating more technology into classrooms to integrating movement activities into literacy instruction. Finally, respondents consistently believed girls to be more motivated readers and regarded girls as more eager readers and speakers. Two respondents explained that girls were “more verbal” than boys, and one noted that girls have a “natural affinity for reading.”

Findings Related to Research-based Literacy Instruction

Observation rubric. Two observations were conducted in the classrooms of teachers included in the sample. The key components of balanced literacy instruction include guided reading, independent reading, independent writing, read aloud, shared reading, accountable talk, conferencing, pair and share, and predictions, and were assessed using the rubric. ELA lessons evaluated were 15 minutes in length. A number of balanced literacy components were used during both lessons. Reading aloud was the most frequently used balanced literacy instructional element and was consistently used throughout both lessons.

Other elements of a balanced literacy approach were not used at all, including conferencing and pair and share, though it is possible these elements were not in evidence due to the brief duration of the observations. Strategies unrelated to the balanced literacy approach were also frequently utilized during both lessons, specifically teacher talk and brief instruction. One instructor did engage in frequent accountable talk, which Frey, Lee, Tolleson, Pass, and Massengil (2005) proposed created a positive classroom environment. The teaching strategy used most was the activation of prior knowledge, which was in evidence during both observations. While the balanced literacy observation rubric contained 22 total categories, several were for the specific purposes of the form’s creators and were therefore not applicable, including “other - balanced literacy,” “other – English language arts,” and a general “other” category. Two other

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categories, teacher smiling at a student and teacher touch, could not be assessed based on the positioning of the video camera in the classroom.

The remaining 16 balanced literacy categories included (a) read aloud, (b) shared reading, (c) guided reading, (d) independent reading, (e) center activities, (f) transitions, (g) student talk, (h) praise, (i) phonemic awareness, (j) concepts of print, (k) pair and share, (l) predictions, (m) conferencing, (n) activation of prior knowledge, (o) relating to one's personal experience, and (p) brief direct instruction. In one lesson, 11 of these strategies were present during instruction according to both observers: reading aloud, shared reading, guided reading, independent writing, transitions, student talk, praise, phonemic awareness, predictions, activation of prior knowledge, and brief direct instruction. In the second observation, five balanced literacy strategies were observed by the peer observer, six by the researcher himself: reading aloud, transitions, student talk, activation of prior knowledge, and brief direct instruction were observed by both reviewers, while the researcher also noted praise during one 45 second interval.

Interrater reliability was high across both observations. The two observers agreed on 100% of categorizations used, meaning they each identified elements like phonetic awareness, transitions, and praise at similar times in the lesson. For the first lesson, observers identified 32 instances of balanced literacy elements in use and agreed on 28 of these instances for an agreement rate of 87.5%. For the second observation, 50 total instances of balanced literacy elements being used were noted, and observers agreed on 46 of these for an agreement rate of 92%.

Interviews. Teachers spoke of instructional strategies that were effective for boys, such as the use of flexible seating and the integration of technology into ELA classes, but did so based on anecdotal evidence, rather than research, and did not focus on pedagogy as much as

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environment and affordances. Developing lessons that engage boys was cited as an important element of literacy instruction by two respondents. Only one respondent provided an example of research-based literacy instruction being used in her classroom, though another respondent described using elements of balanced literacy without explicitly defining or naming the instructional approach.

Summary. There were several findings that helped shape this work that emerged during this needs assessment. Teacher knowledge related to boys and reading instruction was strong in a number of areas, but several questions related to gender-related differences in literacy achievement as well as science and mathematics proved challenging for participants. Teacher beliefs were consistent in several areas, but none of the questions asked produced a consensus answer, and questions about boys' behavior and male culture in school environments produced a diverse array of responses. Finally, teachers' use of research-based instructional strategies were different between the two classes. Reading aloud and direct instruction were utilized with some frequency, but a number of research-based strategies were not used in either class session.

Limitations

There are several limitations to this needs assessment study. Modifying questions on the KBRI and BBRI instruments may pose a threat to their validity, given that they had been validated prior to my use. Interview questions were previously validated and used in 72 separate interviews (Alloway et al., 2002), but that research context differs from the current study's, so some questions may not be generalizable to this school setting. The small sample size of this needs assessment is also a limitation, especially considering that only two respondents were available for classroom observation. Finally, given the unique context of this small, urban,

religious school, this study may not be generalizable to public schools, suburban or rural schools, or single-sex institutions.

Conclusions and Implications

The findings of this needs assessment provided detail on teachers' knowledge of boys and literacy, knowledge of research-based instructional practices, and beliefs about boys and literacy. Participants' responses to survey questions, an instructional knowledge quiz, and interview questions provided insight into what teachers know and believe about boys and reading. Classroom observations and semi-structured interviews offered a window into reading instructional practices at SSCS.

A total of 29.8% of teacher responses on the KBRI quiz were incorrect. Half of respondents believed that gender literacy achievement gaps disappeared in high school, and 75% of respondents were not aware that boys are more likely to be grade repeaters or dropouts by middle school. Instructional strategies that were discussed were generally not connected to existing research, with the lone exception being one participant's discussion of the Orton-Gillingham multisensory approach to teaching literacy. Teacher beliefs about boys were also varied. Participants generally did not believe that high interest texts are less available to boys than girls and held mixed beliefs about whether boys prefer non-fiction to fiction, but all participants agreed that if schools adopted different assessment practices, boys' reading achievement results would improve. Participants indicated that they believed interest in reading is at least partially shaped by gender, as 75% of respondents indicated that boys feel reading is more feminine than masculine, while 100% of respondents believed that gender can be a factor in students' approaches to reading. Finally, the use of the elements of a balanced literacy approach to instruction were limited, with 11 of 16 components noted during one observation,

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but six of 16 noted in the other. Given the limited professional development offerings at the school, this result was not surprising.

More awareness of boys' literacy and school outcomes might be useful in convincing teachers to adapt their instructional strategies to help foster better outcomes for boys. Critically, every teacher in the survey was aware of the existence of a gender literacy achievement gap, but none outlined specific research-based instructional strategies that might help address this gap. The data collected from the instruments used in this study provided evidence that the proposed intervention should address teacher knowledge and beliefs, as well as research-based instructional strategies. The intervention should aim to improve teacher knowledge about boys and literacy by introducing instructional literacy strategies that have been proven to be effective for boys and providing teachers with information about boys and their literacy learning. The intervention should also attempt to address teachers' beliefs about boys and reading by analyzing teachers' dispositions and pre-existing beliefs related to boys and reading, and by offering opportunities for reflection through the viewing of recorded lessons, contributions to a personal literacy journal, and the systematic critical review of teaching materials and lesson plans through the lens of potential gender bias. Finally, this intervention should provide teachers with a research-based literacy instructional framework designed to improve literacy instruction for all students in participants' Grades 3-8 classrooms. Chapter 3 explores the literature for the design of an intervention intended to shift teacher knowledge and beliefs, and specifically to enhance teacher knowledge and beliefs related to boys and literacy.

Chapter 3

Intervention Literature Synthesis

A needs assessment conducted with teachers at St. Stephen's Catholic School (SSCS) suggested room for growth related to teachers' knowledge and beliefs related to boys and literacy. Teachers who participated in the needs assessment at this urban Catholic school demonstrated potential for growth in their knowledge of instructional strategies that support boys' literacy, and participants reported limited use of research-based literacy instructional strategies which would likely benefit all students, male and female. During interviews, participating teachers addressed instructional strategies they believed would improve or support boys' literacy, but their perceptions were not always rooted in existing research. Two classroom observations revealed that, while teachers did use a number of research-based instructional strategies during instruction, they were limited in their use of several effective balanced literacy elements including conferencing and pair and share. Survey and quiz responses indicated that teachers held divergent beliefs about literacy instructional strategies that benefit boys. For example, half of the respondents believed that "gender achievement gaps in reading tend to equal out in high school" and half responded incorrectly to the prompt, "Girls tend to comprehend expository text better than boys do."

This review of the intervention literature is intended to build an understanding of how these interventions influenced teachers and student outcomes, specifically how interventions increased teacher knowledge about literacy instruction effective for all students, enhanced knowledge related to literacy instruction for boys, and shifted teacher beliefs. After reviewing the literature on potential interventions, this chapter proposes an intervention centered on collaborative, teacher driven professional learning that integrates gender-relevant pedagogical

and instructional strategies into 3rd-8th grade ELA classrooms. The conceptual framework guiding this intervention is Gess-Newsome's (2015) modification of Shulman's (1987) concept of pedagogical content knowledge (PCK), which asks teachers to be knowledgeable of both the content they teach and the most effective pedagogical strategies for their students.

This chapter begins with an introduction of the conceptual framework guiding the sections of the chapter. Next, the literature review of proposed interventions offers insight into previous efforts to improve student literacy outcomes by enhancing teacher knowledge and influencing beliefs related to literacy and literacy instruction. This synthesis will focus primarily on three types of interventions: (a) those designed to modify teacher knowledge and/or beliefs, (b) those designed to improve general literacy outcomes for elementary and middle school students, and (c) those designed to influence the gender achievement gap in literacy through changes in teacher practices. Then the chapter provides an overview of the proposed intervention. Finally, a brief conclusion summarizes the chapter.

Conceptual Framework

This study is conceptually rooted in Gess-Newsome's (2015) teacher pedagogical knowledge and skills (TPK&S) framework, which is an adaptation of Shulman's (1987) original conception of pedagogical content knowledge (PCK). The complex nature of teacher knowledge and its relationship to instructional practice was captured in Shulman's (1986, 1987) PCK, which posited that teachers must possess both content knowledge and knowledge of content pedagogy to deliver effective instruction. Shulman's conception, however, did not address teacher beliefs or other mediating factors, the absence of which have been noted by some proponents of the framework (Magnusson et al., 1999). TPK&S updates the existing model to include the mediating effect of teachers' beliefs, prior knowledge, and behaviors on instructional practice

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(Gess-Newsome, 2015). Figure 3.1 is a representation of the TPK&S framework adapted for the teaching of literacy. Content and pedagogical knowledge of literacy content and strategies in general and literacy content and strategies for boys in particular, all of which help comprise teacher knowledge, as well as teacher beliefs, which serve as instructional mediators, are represented in this model.

During 2012's PCK Summit, a group of researchers (Carlson, Stokes, Helms, Gess-Newsome, & Gardner, 2015) worked together to address open questions related to PCK, one of which focused on the role of teachers' personal orientations and beliefs in PCK. Gess-Newsome (2015) argued that PCK was "influenced by subject matter knowledge and beliefs, pedagogical knowledge and beliefs, and knowledge and beliefs about context" (p. 28), and included beliefs about students as part of those context beliefs. Further, she explained that "teacher beliefs and orientations act as amplifiers or filters to teacher learning and mediate teacher actions" (Gess-Newsome, 2015, p. 30). TPK&S has only been applied to science teaching up to this point, but literacy instruction has been considered in light of PCK in a variety of studies over several decades (Baser, Kopcha, & Ozden, 2016; Godley, Reaser, & Moore, 2015; Goldschmidt & Phelps, 2010; Howey & Grossman, 1989; Twiselton, 2000; Wright, 2007).

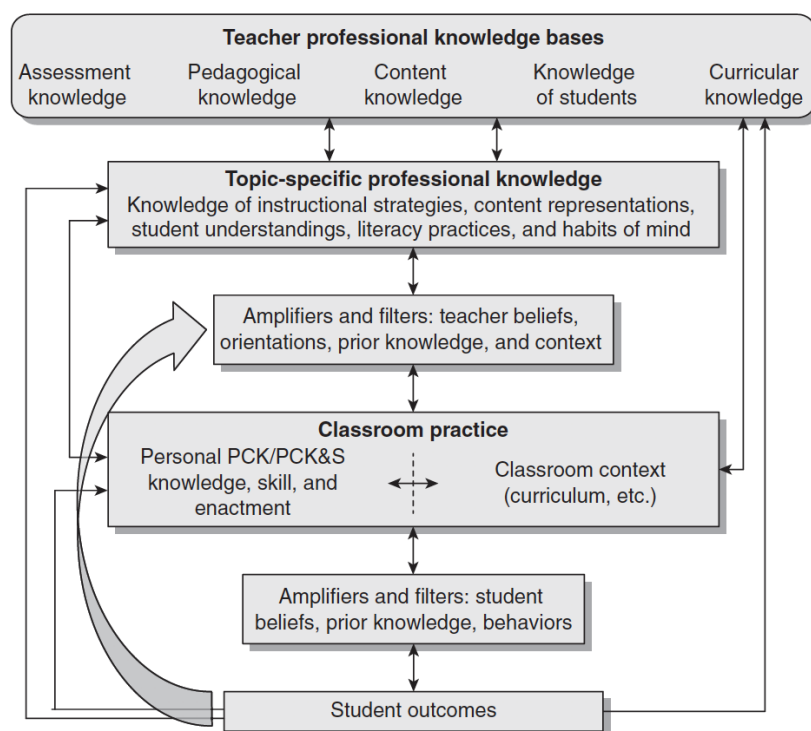
In Figure 3.1, the bases of professional knowledge for teachers feed into topic-specific professional knowledge, which are mediated by personal considerations like teacher beliefs and prior knowledge. Those factors influence classroom practices and related skills, which are further amplified and filtered by student beliefs, prior knowledge, and behaviors, and ultimately lead to student outcomes. The focuses of this literature review are contained within this figure: teacher pedagogical knowledge and knowledge of students are contained within the top layer of teacher

knowledge bases, while teacher beliefs are contained in the first set of amplifiers and filters.

TPK&S is the lens through which this literature review was framed.

Figure 3.1

Teacher Pedagogical Knowledge and Skills (TPK&S) Framework for Teaching Literacy



From Gess-Newsome, J. (2015). A model of teacher professional knowledge and skill including PCK: Results of the thinking from the PCK Summit. In *Re-examining pedagogical content knowledge in science education* (p. 31). Dordrecht, Netherlands: Springer. Adapted with permission.

Review of Literature Related to Effective Interventions for Boys' Literacy

A review of the literature on boys' and girls' literacy illustrates the persistent and specific belief among educators that girls are more capable readers than boys (Boerma et al., 2016), a belief that is reinforced by student outcomes. Female students have consistently outperformed male students in non-STEM subjects including ELA as measured by class grades (O'Dea,

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Lagisz, Jennions, & Nakagawa, 2018) and standardized test scores (Brozo et al., 2014). As a result, there is a perception in many Western countries that boys are underachieving in school and, as a consequence, falling behind their female counterparts (Scholes, 2010). Teacher beliefs are entangled with teacher knowledge, which is also an area researchers and practitioners have worked to increase (Farrell & Ives, 2015; Moats, 1995). Teacher knowledge about literacy instruction may be lacking in some areas, as one study of literacy instruction indicated that “teachers planned little or no time for areas such as assessment, vocabulary, phonemic awareness, and spelling” (Spear-Swerling & Zibulsky, 2014, p. 1353). Teaching literacy to students in urban environments may involve challenges related to cultural and linguistic diversity, as well as external factors like higher student poverty levels in cities (Conley, Kerner, & Reynolds, 2005). While there is a great deal of extant research on literacy instruction, there are notable gaps in the literature regarding the intersection of student gender and teacher knowledge and beliefs regarding literacy instruction.

One potential solution to the literacy achievement gap lies in interventions intending to improve instructional practices related to male students and literacy. Teacher beliefs have a long-term impact on students’ reading self-concept (Retelsdorf et al., 2015) and teacher gender stereotypes affect their perceptions of boys’ behavior and ability (Riley, 2014). Additionally, specific instructional strategies have been proven to improve literacy outcomes and enhance engagement for boys (Gurian & Stevens, 2005), but most teacher training programs fail to provide teacher trainees with “a strong grounding in the science of reading” (Walsh, Glaser, & Wilcox, 2006, p. 46), and teachers who complete training programs are not always prepared to teach the processes upon which literacy depends (Moats, 2009).

Interventions Designed to Close the Gender Literacy Achievement Gap

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While changing teacher knowledge and beliefs and developing instructional practices related to literacy may improve boys' reading and writing skills, a number of researchers have been more direct in seeking out ways to engage boys in reading and improve boys' literacy outcomes (Brozo, 2010; Farris, Werderich, Nelson, & Fuhler, 2009; Worthy, Moorman, & Turner, 1999). There are a number of reasons to focus specifically on boys' literacy needs that are not related to underperformance: (a) there are biological differences in how boys and girls process language and develop verbal skills (Bonomo, 2010; Hanlon, Thatcher, & Cline, 1999; Logan & Johnston, 2010), (b) boys and girls have different interests (Canadian Council on Learning, 2009) and (c) motivations (Lupart et al., 2004), and (d) boys face general perceptions that they are less adept (Retelsdorf et al., 2015) and (e) less interested (Jones & Myhill, 2004) in reading than their female peers. Additionally, teachers' perceptions of boys' behavior in classroom settings is often different from their perceptions of girls' behavior, which may contribute to higher rates of disciplinary actions against boys (Rafa, 2018; Wehmeyer & Schwartz, 2001), which often leads to the loss of instructional time (Gregory & Roberts, 2017). These factors highlight the importance of the development and utilization of strategies designed to improve boys' literacy learning.

Researchers have proposed numerous strategies to improve literacy outcomes for boys. Efforts have aimed to center boys' literary interests in various ways, including book clubs (Mitchell, Murphy, & Peters, 2008), digital texts (Senn, 2012), and classroom rewards for student reading (Welldon, 2005). Offering boys student choice in text selection is another way to increase their literacy engagement (Carroll & Beman, 2015), and boys tend to find the use of classroom technology engaging (Alloway et al., 2002; Sokal & Katz, 2008). As boys age, their preferences for non-fiction books increase, and their general reading preferences become

stronger (Topping, 2015). Additionally, boys are responsive to technology, and national studies of boys' literacy in school have exhorted teachers to integrate technology into planning and teaching (Brosseau, 2014). Providing them with options and integrating technology into literacy instruction are two ways to motivate boys to read and represent potential paths to improving literacy instruction.

Student choice and book selection. Boys and girls like to read and write different types of texts (Merisuo-Storm, 2006), and girls generally report higher reading motivation than boys (Chiu, 2018). One instructional strategy for increasing male engagement in literacy is exposing boys to texts that capture boys' imaginations (Brozo, 2010). The texts offered in many school settings are often not of high interest to boys (Brozo et al., 2014; Newkirk, 2006; M. W. Smith & Wilhelm, 2002), which is one reason pupils' interest should be a key consideration in teachers' selection of reading material. While there is evidence that boys in urban environments enjoy leisure reading, there is a perception among teachers and librarians that the texts boys like, such as comic books and magazines, are not sufficiently literary in comparison to the types of books teachers select for their students (Hughes-Hassell & Rodge, 2007). The Canadian Council on Learning (2009) explained that "books about sports, stories about animals, adventure tales with male protagonists or natural events can alter boys' attitudes toward reading as a feminine activity" and encouraged educators to diversify classroom libraries to reflect student interests more broadly. Boys' outside-of-school literacy practices are not mirrored in their classrooms, and Brozo's (2010) research indicated that the elimination of barriers between boys' competencies with outside-of-school texts, which are the books children opt to read during their free time, and the literacy practices they experience in school may increase learning engagement and expand their literacy abilities.

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Inquiry-based learning programs can be helpful in integrating student choice into literacy instruction, as Carroll and Beman (2015) illustrated in their study of the effects of an understanding by design model on 14-year-old boys' literacy attainment. Understanding by design is a curricular design that starts with the end result in mind regarding what students should know or learn at the conclusion of the unit of work in which they are engaged. In this study, when boys were allowed to make text choices, they chose texts that were academic and rigorous but also were engaging to them. The teacher also chose the unit theme of war, a topic of general interest to the boys, which meant the text options they were provided elicited positive responses and deepened boys' engagement in reading.

In a different qualitative study, a teacher who recognized the television program *Empire* as analogous to *King Lear* was able to make that connection for five middle school boys in an urban Midwestern school (Guenther, 2017). By the end of a two-year intervention that focused on student strengths, interests, and the integration of classic literature into middle school instruction, all five students were reading well above grade level. The use of a popular television program in instruction is an example of integrating popular culture into instruction, a technique that has been used by a number of researchers with the intention of engaging boys in literacy (Brozo, 2019; Carr-Chellman, 2012; Kehler & Cassidy, 2017). Using choice also extends beyond the integration of popular culture into classrooms, as Guenther (2017) and others have illustrated.

The example provided by Guenther (2017) is a powerful one. In the classroom he studied, the instructor focused on building anticipation for reading the text through positive reinforcement, previewing, and treating Shakespeare like a beloved figure in the class (Guenther, 2017). The instruction effectively mixed "rational, philosophical" appeals to students' desires to relate to people who lived hundreds of years ago and interest in exploring the similarities and

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differences between people then and people today. The instructor was also playful in his use of alternative texts for students to write about. Using these strategies, the teacher broadened students' conceptions of literacy and offered opportunities for students to analyze non-traditional texts as part of literacy instruction. Instructor efforts to extend the concept of literacy are also valuable when incorporating education technology into the classroom.

Technology integration. Research has illustrated that the integration of technology into instructional practice has proven beneficial to boys and girls, and students have shown increased reading motivation when using online discussion forums (A. F. Thomas, 2014), vocabulary growth when using an online vocabulary program (Huang, 2015), and enhanced conceptions of self-identity when using digital authoring tools like Educreations (Lewis Ellison & Solomon, 2018). In addition to online communication tools and specialized software, literacy instruction has been infused with technology through the utilization of digital tools designed to assist children's learning to read with visual elements, movies, music, and photos (McDermott & Gormley, 2016). Boys are more likely than girls to embrace digital classroom technologies (Carroll, 2016; Ferguson, 2017), and researchers have hypothesized that the digital presentation of reading materials neutralizes the perception of reading as a feminine task (Sokal & Katz, 2008). Some evidence suggests that one potential issue with effective technology integration is that some teachers prefer technology to be "external to in-class routines and activities" and consider it inessential to instruction (Securro, Mayo, & Rinehart, 2009, p. 72). One way to address this is through activities that allow teachers to achieve some level of technological mastery, as one reason for resistance to the use of technology is a lack of preparedness (Perry, 2018).

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Leveraging boys' existing interests in digital media is one strategy educators and researchers have used to improve boys' literacy outcomes. Video games and mobile technologies are part of students' lived experiences, and literacy instruction should value students' world views and incorporate students' interests (Carroll, 2016). In one Australian study of Year 12 boys, their teacher integrated digital technologies into their ELA studies in several forms: students were allowed to bring their own devices to the class, an interactive whiteboard was placed in the classroom, and a Google Site was set up to serve as a course communication hub (Gresham & Gibson-Langford, 2012). Outcomes were uniformly positive: the boys became more participative, exhibited more confidence in their writing, and were enthusiastic in sharing their thoughts about the unit of study (Gresham & Gibson-Langford, 2012). A more recent case study in a rural Colorado school centered on the use of Amazon Kindle eReaders pre-loaded with a variety of texts and focused on the effect the mobile devices had on eight Grade 8 boys in the class (A. A. Martinez, Woodley, Lucero, & Parra, 2019). This instrumental case study utilized qualitative data in the form of participant observations and focus group interviews to determine that boys were able to select books they found relevant and were thus engaged in self-regulated learning. Existing skills were refined and advanced through language development, vocabulary learning, and online gameplay.

Boys are also engaged by the integration of tablets and mobile devices into their classrooms including iPads and Chromebooks (Hilton, 2018). Research has illustrated that one-to-one computing initiatives engage boys and girls in literacy in a variety of contexts (Frazier & Trekles, 2018; Toohey et al., 2015). In one such study of a personalized iPad deployment, a host of positive effects emerged: students with disabilities leveraged the device's read aloud and adaptivity tools, teachers reported improved classroom management, and engagement levels for

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boys and girls improved (Ferguson, 2017). The implementation plan called for each student from Grades 6-8 to receive an iPad during instructional time. Students then completed a survey describing their feelings on iPads in the classroom after eight months of usage. Boys reported feeling as though they could learn better using an iPad more frequently than girls did on the survey, and a higher proportion of boys believed iPads were helping them improve their grades.

Several of the interventions discussed in this section feature elements of what DeFauw (2016) and Bristol (2015) called gender-relevant pedagogy, which is a pedagogical approach that aims to integrate specific strategies into instruction that may help engage males in literacy. Brozo (2010) calls these “boy-friendly” instructional approaches, but the strategies are similar: offer books and texts of high interest to readers of all kinds, provide students with choice regarding activities, assessments, and texts, integrate technology into literacy instruction, and broaden definitions of what constitutes a text to include popular culture and non-traditional forms of fiction and non-fiction. A deeper discussion of these strategies can be found in the gender-relevant pedagogy section of this chapter.

Interventions Designed to Modify Literacy Instruction

One way to enhance teacher knowledge is to provide teachers with support in learning about and utilizing evidence-based literacy instructional practices. Evidence-based instruction is also sometimes referred to as research-based instruction, and an evidence-based best practice “refers to an instructional practice with a record of success that is both trustworthy and valid” (Gambrell, Malloy, & Mazzoni, 2011, p. 78). If a literacy instructional approach has been implemented and been shown to be effective with a particular group of children during a study, researchers now have evidence of its efficacy (Gambrell et al., 2011). While there are dozens of different approaches to the teaching of literacy, research-based instructional approaches can be

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divided into three broad categories: (a) skills approaches, which emphasize decoding and encoding processes; (b) growth and heritage approaches, which emphasize the personal ways reading and writing influence a developing individual; (c) critical-cultural approaches, which center on the context-dependent variability of everyday literacy practices (Alloway et al., 2002). A number of methodologies for teaching literacy have gained currency over the last 30 years, and some of these, including balanced literacy (Kennedy & Shiel, 2010), whole language instruction (Daniels, Zemelman, & Bizar, 1999), and critical literacy (Morrell, 2002) have been utilized in attempts to implement effective literacy instruction into elementary and middle school classrooms.

Literacy instructional strategies extend beyond balanced literacy, growth and heritage approaches to literacy, and critical literacy and culturally responsive instruction, but several methodologies have been excluded from this study. One example of this is learning-focused reciprocal teaching, which is a collaborative reading process that centers the student and student groups and promotes reading motivation (Ng & Leicht, 2019). Additionally, concept-oriented reading instruction utilizes multiple strategies including the activation of prior knowledge, questioning, finding information, utilizing graphic organization strategies, and structuring narratives (Guthrie et al., 2004). Traditional instruction is also still in use in many districts despite evidence that more effective strategies exist; basal reader instruction dominated literacy curricula for 80 years (Block, Parris, Reed, Whiteley, & Cleveland, 2009) and continues to be popular today (Hoffman, 2017). While all of these strategies have their proponents, this synthesis focuses on balanced literacy and gender-relevant pedagogy because existing research has focused on the integration of balanced literacy strategies into urban K-8 classrooms (Frey et al., 2005; Wexler et al., 2018; S. Wood & Jocius, 2013), and because gender-relevant pedagogical

strategies have been effective in engaging boys in reading and writing (Bristol, 2015; DeFauw, 2016).

The instructional methods that will be addressed next in this chapter each have unique approaches to supporting literacy attainment. Balanced literacy is a skills-based approach focused on “reading comprehension and students’ creation of meaning through active interaction with text” (Bitter et al., 2009, p. 18). Whole language instruction, which has its roots in literature-based instructional strategies, is an example of a growth and heritage approach to literacy instruction (Daniels et al., 1999). The child is perceived as a learner experiencing a growth process, and the teacher is expected to facilitate this growth by creating language experiences that foster literacy attainment (Alloway et al., 2002). Critical literacy and culturally responsive literacy instruction are examples of the critical-cultural approach to literacy instruction and thus focus on relating students’ authentic experiences to the texts they read (S. A. Robinson, 2019). These approaches encourage teachers to adapt their pedagogy and instruction to meet all learners’ needs (S. A. Robinson, 2019). While different approaches have different strengths, it is critical for educators to be cognizant of and comfortable using evidence-based instructional practices designed to support reading achievement (Roberts et al., 2008). This does not mean teachers make generally poor choices regarding reading material for their students, but rather that expanding book choice is likely to increase students’ reading volume, since students who are allowed to select texts for themselves are more likely to become intrinsically motivated readers (Fisher & Frey, 2018).

Critical literacy and culturally responsive instruction. Critical literacy and culturally responsive instruction echo Friere’s (1970) conception of readers as central to the process of making meaning. Norris, Lucas, and Prudhoe (2012) further explained that critical literacy

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includes focusing on “elements of the various historical, social, and political contexts involved” (p. 59), which is valuable since an individual’s expression of being an “everyday” person is socially constructed and largely dependent on culture (J. P. Gee, 2008). Similarly, culturally responsive instruction is intended to be consistent with students’ cultural values and requires teachers to adapt their teaching strategies to accommodate learners of all kinds (Nichols, Rupley, Webb-Johnson, & Tlusty, 2000). Helping students develop personal responses to literature is an important component of “a critical, culturally relevant approach” to teaching literacy (Fredricks, 2012, p. 494). One benefit of considering the conditions of students’ lives when developing literacy policy is moving past the discourse that blames specific groups of students for low achievement (Franzak, 2006). This is a helpful paradigm when considering boys’ academic success, as their behaviors and attitudes are often used to explain their perceived underachievement (Jones & Myhill, 2004; Retelsdorf et al., 2015; Riley, 2014).

Several studies have centered on the integration of culturally affirming practices into literacy environments in urban contexts. In Ladson-Billings’ (1994) seminal book on the integration of culturally responsive teaching practices into schools with predominantly Black student populations, the author observed a teacher who selected a text relevant to her fifth grade students, and who ignored the negative labels applied to several of her students. Her approach contributed to a positive literacy learning environment, as the researcher described witnessing a classroom full of engaged students working on literacy skills with increasing confidence and competence (Ladson-Billings, 1994). K.L. Thomas (2019) implemented several concepts designed to engage Black male readers using critical literacy strategies, from stocking the classroom library with high interest texts for both boys and girls to prioritizing student commentary in class discussions of literature to allowing students to maintain and manage the

classroom library. Acknowledging students' "cultural, emotional, social, and academic needs during an early stage of literacy development yielded a dynamic impact on their reading attitudes and academic outcomes" (K. L. Thomas, 2019, p. 764). Wood and Jocius (2013) also pointed to the importance of culturally relevant books in a well-stocked library, and went so far as to codify the three Cs of effective culturally responsive literacy instruction: culturally relevant texts, collaboration, and critical conversations.

Gender-relevant pedagogy. Like culturally responsive literacy instruction, gender-relevant pedagogy (GRP) encourages teachers to choose course materials to which their students can make meaningful connections (Bristol, 2015). The primary difference between culturally responsive approaches and GRP is the latter's explicit focus on gender as a mediating factor in students' education, and specifically regarding student literacy. According to Bristol (personal communication, February 12, 2020), who coined the term, GRP concepts can be applied to all male students. GRP strategies often begin with reconnaissance (Gresham & Gibson-Langford, 2012), conferencing (DeFauw, 2016), and similar strategies designed to help the teacher understand the interests and out-of-school lives of their students. From there, teachers and researchers have utilized a number of strategies to engage boys and improve their literacy outcomes, including allowing and encouraging games and competition (Carroll, 2016), relationship building between teachers and male students (L. Martinez, 2010), providing student choice of activities (Carroll & Beman, 2015), texts (Brozo, 2010), and topics (DeFauw, 2016), engaging boys' personal interests with pop culture and familiar texts (Brozo, 2006; Guenther, 2017), providing experiential and active learning opportunities (Alloway et al., 2002; Michael Reichert & Hawley, 2010), offering mentor texts to guide reading and writing (DeFauw, 2016), providing opportunities for peer sharing (DeFauw, 2016), showing boys positive male archetypes

in texts (Brozo, 2010), and integrating technology into literacy lessons (Bristol, 2015). Many of the strategies referenced here are included in other sections of this chapter, but only a GRP approach ties them together philosophically.

While Bristol (2015) coined the phrase gender-relevant pedagogy, a number of researchers have addressed the teaching of boys through a similar lens. Brozo (2010) referred to boy-friendly approaches to instruction, while Reichert and Hawley (2010) discussed pedagogy that involved teaching fitted to boys' lives. It is critical to note that none of these strategies intend to privilege a specific conception of maleness, and gender-relevant approaches to teaching literacy are not designed to treat boys as a cohort with a singular set of interests. Brozo (2005) explicitly cautioned against this, writing that if we think about boys as a monolithic group, we risk fostering the notion that "there is only one way to be masculine," which could result in "literacy schemes that fail to meet the unique needs of certain boys" (p. 18).

The researchers discussed in this section have worked with a broad spectrum of boys in diverse environments, including an urban American city predominantly populated with Black students, a New York City school in which the teacher focuses on Latino boys, and a suburban Australian school with a mostly White student body. Addressing boys' relative literacy underachievement while avoiding potentially problematic labeling has been the focus of several studies, including Scott's (2014) Braverman Essay deconstructing the books for boys discourse. In his essay, Scott contends that labeling books or activities as explicitly masculine may alienate students and make them question their reading choices. The intention of gender-relevant pedagogy in these contexts is to incorporate strategies that have been shown over time to be effective for teaching male learners' literacy without alienating other learners or privileging a specific point of view or version of maleness.

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There are two studies that primarily focused on GRP and boys, with one centered on reading, the other on writing. A qualitative study of African American eighth-grade boys in an urban Northeastern city saw their teacher implement gender-relevant pedagogy that specifically included video games into her instruction (Bristol, 2015). The instructor modified an existing assignment on characterization and character development to include a new option geared towards her male students, who frequently discussed video games in class (Bristol, 2015). Students created a video game character and designed the conditions through which character development would occur throughout the game, and the boys who participated reported feeling engaged while their teacher explained that this was the first time these boys identified themselves as writers (Bristol, 2015).

Given the success Bristol had with boys' reading and GRP, the next step was assessing GRP's value in a writing classroom. DeFauw (2016) conducted a study based on Bristol's (2015) conception of GRP. In her qualitative study, the author introduced a number of boy-friendly strategies into her writing activities, including student conferencing, student choice, and opportunities to share student work products (DeFauw, 2016). In her 3rd grade classroom, DeFauw integrated GRP into her writing workshop framework. Based on her observations, the author determined that including boys' interests and providing them with choice led to improved engagement and enthusiasm (DeFauw, 2016). DeFauw's conclusion offered a succinct explanation of why GRP is valuable: "Even when boys' outside-of-school interests (e.g., video games, sports, and hunting) do not align with teachers' interests, teachers can support boys' content development through framing the topics within genres teachers need to teach" (p. 53).

Instructors who attempt to integrate gender-relevant instructional approaches in literacy classes often arrive at similar conclusions. L. Martinez (2010) conducted a qualitative study of

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four struggling boys in one of his high school English classes. He stressed getting to know students as individuals and trying to understand their personal, out-of-school selves, provided students with non-fiction and popular culture texts, broadened his conception of what constitutes a text to include things like advertisements, which boys enjoyed analyzing, offered novels that were of high interest to boys and offered choices of what to read, and began conferencing more regularly with his students and specifically with his four student participants (L. Martinez, 2010). The author ultimately determined that he was at least partially responsible for his boys' lack of engagement in reading, and concluded that his added efforts had the capacity to "enrich, support, and benefit" his students (L. Martinez, 2010, p. 124). While this research was not explicitly rooted in GRP, several of the strategies used by the teacher overlap with the components of GRP.

GRP strategies have been explored in numerous contexts and countries. In Gresham and Gibson-Langford's (2012) previously mentioned study of twelve Year 12 boys in an advanced English class in New South Wales, Australia, the instructor collected texts in digital formats, included non-traditional texts like political cartoons, created a class Google Site, and incorporated competitive digital games into her class with the explicit goal of engaging boys in learning. Class sessions were recorded, students completed surveys and reflections, and comments were posted on their shared Google Site. Analyzing data from pre- and post-intervention surveys, the author drew several conclusions, including noting that "it was evident that the participants' attitude during class lessons moved from one of disengagement to one of sharing ideas and spirited discussion" and explained that "the learning atmosphere changed" in positive ways after the integration of gender-relevant instructional strategies (Gresham & Gibson-Langford, 2012, p. 85). Further, the boys expressed higher levels of enjoyment in class

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and confidence in their work, and were more willing to take initiative to complete assignments (Gresham & Gibson-Langford, 2012).

In summary, there is evidence that gender-relevant pedagogical strategies have helped boys make connections to classroom resources (Bristol, 2015), improved their engagement in writing activities (DeFauw, 2016), and can help instructors build supportive, enriching literacy learning environments for their male students (L. Martinez, 2010). Further, they have proven efficacy in elementary (DeFauw, 2016) and middle school (Bristol, 2015) language arts classrooms. Finally, gender-relevant pedagogical strategies have been used in urban environments (Bristol, 2015) and may be effective in increasing reading enjoyment and improving boys' literacy competencies (Brozo et al., 2014).

Balanced literacy. Balanced literacy emphasizes phonemic awareness, word recognition instruction, vocabulary teaching, comprehension strategies, extensive reading in various forms, and self-monitoring (Pressley et al., 2002). New York City's Department of Education identified five critical components of balanced literacy: (a) phonemic awareness, (b) phonics instruction, (c) fluency, (d) vocabulary, and (e) comprehension (New York City Department of Education, 2003), and these components have been utilized in interventions in the past (Shaw & Hurst, 2012). Teachers implementing balanced literacy strategies aim to combine direct, explicit skills instruction and reading for meaning to enhance student reading motivation (Pressley & Allington, 2014). Balanced literacy programs have been introduced across grade levels at schools of various types (Frederick, 2017; Rog, 2003; Shaw & Hurst, 2012; Willson & Falcon, 2018), and teachers have a critical role in their implementation (Coburn & Stein, 2006). Balanced literacy programs have also been implemented in a number of urban schools over the last two decades (Frey et al., 2005; Kennedy & Shiel, 2010; Kesler, 2008; Lombardi, 2015).

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The effectiveness of balanced literacy instruction has been assessed through a number of studies. One such study took place in an urban K-2 school populated by students from low-income, White Irish families (Kennedy & Shiel, 2010). The authors described their context as a high-poverty community affected by high unemployment, low educational attainment, large numbers of single parents at head of household, and high levels of drug use and crime. A balanced literacy program was implemented by a facilitator and the teacher participants over a two-year period through sustained onsite professional development. The program began with four 1st grade teachers and their students and followed those students into 2nd grade the following year. The professional development program was targeted to the teachers involved and the specific students they taught; current student achievement in literacy was assessed, strengths and weaknesses analyzed, and then the teachers and their training facilitator prioritized steps in the change process. At the end of the training program, qualitative data collected through interviews indicated that teachers felt higher levels of self-efficacy and increased literacy teaching expertise, and teacher participants further explained that student motivation and engagement had improved. For example, toward the end of the intervention, the majority of students were able to identify and describe their reading preferences, and 75% reported reading at home, both improvements over baseline data.

Other long-term studies on balanced literacy integrations have produced similarly positive results. A study encompassing a yearlong balanced literacy implementation in an ethnically diverse first-grade class also yielded positive results (Fitzgerald & Noblit, 2000). During this naturalistic qualitative study, one researcher embedded himself in the classroom one full day a week twice a month and collected data in the form of field notes, student skill assessments, instructional program records, transcriptions of the teacher's audio journal, and

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over a dozen other sources. Based on the authors' analysis of this data, they concluded that after the balanced literacy program was implemented, student motivation increased, students became more competent in their communication skills, phonological awareness improved, and children gained a deeper knowledge of how reading and writing skills are essential to understanding and communicating.

Balanced literacy programs have also scaled up to accommodate larger student populations, including entire urban school districts, and in one case the explicit purpose of the program was to change the “knowledge, beliefs, and instructional practices of elementary teachers in the district” (Frey et al., 2005, p. 279). Over the course of a year, one elementary school, guided by district mandate, implemented a balanced literacy program where teachers received professional development opportunities. New literacy standards were also developed and intended to help guide teachers' literacy instruction. The balanced literacy professional development program was collaboratively developed by teachers, district reading specialists, and consultants. Post-implementation program evaluation indicated that students did more independent work after the instructional shift to balanced literacy, and students indicated that they felt supported in their efforts to learn to read more effectively. During focus groups, students explained that they felt they had a “supportive teacher who read to them and helped them to read” (Frey et al., 2005, p. 279), and independent reading and writing activities were implemented with high frequency. These successful efforts to improve literacy instruction are one way to affect instructional practice. Another is to work towards modifying the underlying knowledge and beliefs that help influence day to day approaches to teaching.

Interventions Intended to Influence Teacher Knowledge and Beliefs

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There is some debate about what beliefs are (Bobis, Way, Anderson, & Martin, 2016; Goldin, Rösken, & Törner, 2009), whether they can be changed with short-term interventions (Fives, Lacatena, & Gerard, 2014; Weinstein, 1990), and whether changing teacher beliefs will improve instruction (Fives & Gill, 2014). In response to those concerns, researchers have argued that the absence of a universal definition of teacher beliefs is a sign of the construct's relative flexibility (Goldin et al., 2009) and that collaborative professional development that spans several months have influenced teacher beliefs (Alger, 2009; Bobis et al., 2016; Goodnough, 2008).

Despite questions about how to define and modify beliefs, studies aimed at modifying teacher beliefs persist, perhaps because “changing beliefs about teaching and learning . . . is crucial if teacher educators hope to change instructional practices, as these beliefs are at the heart of most . . . teachers' ideas of what constitutes good teaching” (Fives et al., 2014, p. 257). Pajares (1992) argued that for some, beliefs are rigid, and for others they are malleable, which is one of the challenges researchers face in attempting to change teacher beliefs. Teacher beliefs are influenced by student-specific factors like gender (Sansone, 2017), race, ethnicity, immigrant status, and SES (Gregory & Roberts, 2017), as well as contextual factors like colleagues and school contexts (Kobett, 2016) and teachers' own cultural experiences (Gilakjani & Sabouri, 2017). The diverse sources and contexts from which beliefs arise is another challenge facing those who seek to modify them through an intervention. It is also worth noting that teacher beliefs are often unconsciously held (Farrell & Ives, 2015), shaped by factors including preservice training (Curtis, 2017), student traits including race, SES, and gender (Auwarter & Aruguete, 2008), and frequently disparate from student beliefs (Buehl & Beck, 2015). Finally, self-reported beliefs are often inconsistent with teacher behaviors (Powers, Zippay, & Butler,

2006) and may therefore be difficult to quantify, presenting another challenge to addressing teacher beliefs through preservice or inservice professional development.

Several studies have treated knowledge and beliefs as intertwined (Cash, Cabell, Hamre, DeCoster, & Pianta, 2015; Farrell & Ives, 2015; Fleming, 2013; Hamre et al., 2012), and interventions have been implemented with the intention to concurrently influence teacher knowledge and beliefs (Hamre et al., 2012; I. A. Wilkinson et al., 2017). A number of strategies have been used to improve teacher knowledge and beliefs including professional development programs (Donnelly et al., 2005) and improvements to teacher preparation programs (Huckabee, 2014).

Professional development programs. Inservice professional development has led to observed growth for new and veteran teachers, and has strengthened knowledge and practice around literacy instructional practices (Steeg & Lambson, 2015). Further, sustained professional development rooted in content-specific pedagogy is related to higher levels of overall student achievement (Reed, 2009). Several factors contribute to the efficacy of a professional development program. Professional development should be sustained over an extended period of time, focus on active learning activities, support collaboration among participants, offer coaching and expert support, provide feedback and opportunities for reflection, and use models of effective practice (Darling-Hammond et al., 2017). An earlier model of effective professional development offered similar ideas of the core components of effective inservice learning, including collaboration among a community of professionals, strategies selected based on how likely they are to improve student learning, that the magnitude of expected change is sufficient and that it is supported by administrators and other stakeholders, and that educators would be able to develop the skill to put what they learned into practice (Joyce & Showers, 1988).

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Several professional development programs have been used to modify teacher knowledge and beliefs, as noted above. Some have been designed to improve teacher-student interactions (Hamre et al., 2012), while others have assisted teachers in developing dialogic pedagogies designed to influence their beliefs (I. A. Wilkinson et al., 2017). Most relevant for the purposes of influencing the gender literacy gap through knowledge and beliefs are studies that aimed to influence teacher knowledge and beliefs about literacy and literacy instruction for boys. While some of these studies centered on directly modifying teacher beliefs (Borg, 2011) or knowledge (Doubet & Southall, 2018), others intended to improve teacher practice and at the same time modify or influence teacher knowledge and beliefs (Ng & Leicht, 2019).

In one study theoretically rooted in PCK, researchers attempted to determine how integrative literacy instructional techniques affect teachers' perceptions and instructional practices (Doubet & Southall, 2018). These strategies involve integrating the core language arts skills of listening, speaking, writing, and reading into classroom language arts instruction, rather than teaching reading and writing as two distinct subjects (Doubet & Southall, 2018). Over the course of the study, 55 high school English or middle school language arts teachers participated by attending one of four weeklong content-focused professional development programs on integrative literacy instructional strategies, which include writing poems based on mentor texts, analyzing and reformulating established children's literature, and engaging in close readings designed to both elicit reader responses and discuss authorial intent. Data collected through pre- and post-workshop surveys and a follow-up survey six months after the training indicated that in some cases, teachers' beliefs can be resistant to professional development, evidenced by one teacher's belief that students' natural proclivities were more responsible for language arts performance than integrated language arts instruction. Despite this resistance, participants

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indicated that overall, the professional development was valuable, and the researchers concluded that it helped strengthen some teachers' ability to integrate reading and writing instruction. The authors specifically pointed to the importance of changing teacher beliefs as foundational to improving instruction.

A longer-term study that was designed to assess the impact of eight weeks of inservice professional development on the beliefs of six English language teachers reported positive outcomes (Borg, 2011). During this longer, more sustained engagement than Doubet and Southall's (2018), a wealth of data were collected and analyzed, including six interviews, pre- and post-activity questionnaires, diagnostic assignments, participant written responses, and an exam. The author concluded that, based on this data, there was "clear evidence that the course had considerable, if variable, impact on the beliefs of the teachers studied" (Borg, 2011, p. 378). During one post-course interview, a participant explained that the professional development course helped her to concretize what she believed about teaching. Interview, assignment, and questionnaire data indicated that of the six teacher participants, three progressed from self-reported limited awareness of their beliefs to strong awareness of their beliefs. The three remaining participants also showed evidence of less robust progress. Because teachers may not have experience examining their beliefs, providing the appropriate supports as they do so including sustained professional development and frequent opportunities for critical reflection, is essential (Borg, 2011).

Administrators have been included in the planning process of balanced literacy professional learning to positive effect. A study of inservice staff development for middle school teachers involved researchers collaborating with a Virginia middle school's teachers and administrators to develop long-term professional development focused on the development and

implementation of reading and writing strategies (Nichols, Young, & Rickelman, 2007).

Participants first completed a survey about their instructional methods, student grouping protocols, content area learning and studying strategies, beliefs about instructional practices, and how their instructional practices related to those beliefs (Nichols et al., 2007). Then over the course of the study, teaching staff dedicated one day a month to whole-day professional development intended to enhance participants' content and instructional knowledge for reading and writing across the content areas, and to assist them in the creation of model lessons integrating grade appropriate reading and writing content and teaching strategies (Nichols et al., 2007). Participants completed an Instructional Design and Strategy Checklist on a monthly basis and submitted it to the researchers, and participants were observed by the researchers several times over the four-month data collection period. While data analysis indicated that professional development helped modify teacher practice, the authors stressed the importance of making it “dependent on content goals, the context of individual schools, preferences of teachers, and needs of the students (Nichols et al., 2007, p. 113).

Lesson study. One approach to professional development that may be worthy of consideration given its effectiveness is the Japanese concept of lesson study and the closely related concept of learning study, which is lesson study rooted in an explicit theoretical framework (K. Wood, 2017). Lesson study can be summarized as multistage professional learning with several distinct phases: a group of practitioners collaboratively plan the lesson to be studied, the lesson is implemented, the lesson is discussed, the lesson is revised if necessary, the revised lesson is taught, and participants share their thoughts about the revised lesson (Saito, 2012). Lesson study allows teachers to experiment with instructional practices and to collaboratively design and analyze a lesson (Doig & Groves, 2011). A number of researchers

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have attempted to use Japanese lesson study as inservice professional development, and while it has predominantly been used for mathematics professional development (Doig & Groves, 2011), there are also examples of lesson study being used in literacy classrooms (Benedict, Park, Brownell, Lauterbach, & Kiely, 2013; Dudley, 2014; Hurd & Licciardo-Musso, 2005).

A meta-analysis of nine articles on lesson and learning study interventions concluded that “all instances of Learning Study reported positive effects on both students and teachers” (Cheung & Wong, 2014, p. 145) across subject areas. Six studies reported positive effects on students, and three reported statistically significant positive effects on students, with benefits including improved understanding of the subject being studied and increased student learning efficiency. Eight studies indicated that lesson or learning studies had positive effects on teachers, half of which were deemed statistically significant. Positive effects on teachers were reflected in their lesson structure, use of patterns of variation in lessons, and variation in handling learning objectives (Cheung & Wong, 2014). Because the problem motivating this literature review concerns student literacy, studies analyzed here will focus on lesson study for humanities and language teachers.

There is evidence that participating in ELA-focused lesson study can shift teacher perceptions and improve instruction. In one autoethnographic case study, two American teachers provided first-hand accounts of their experiences with lesson study as 9th grade English teachers in Japan (Ermeling & Graff-Ermeling, 2014). The English department collaboratively selected the research theme for their lesson study work, then studied the grade-level curriculum to build the research lesson. The research lesson was taught and observed by both participants and other school stakeholders, including the principal and other English faculty members, and a reflection meeting was held after the lesson. The lesson was revised, retaught, and an additional review

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session was convened to discuss additional modifications and the ways in which the lesson was successful. Upon conclusion of the study, the authors remarked that lesson study helped them be patient with their and others' learning, allowed them to embrace obstacles, and helped them grow and improve their teaching practice (Ermeling & Graff-Ermeling, 2014). They ultimately concluded that lesson study has the potential to initiate profound change in the ways American educators approach the improvement of teaching and learning.

The positive effects of lesson study are not limited to mathematics and ELA teachers. A study conducted in a Singapore high school included ten teachers from mathematics, humanities, and science departments in a collaborative professional development program centered on lesson study (Chong & Kong, 2012). Data were collected using qualitative instruments including group discussions, field notes, team interviews, and journals, and humanities teachers were positive in their appraisals of the sessions (Chong & Kong, 2012). While their group struggled to adhere to the protocol, which resulted in some initial difficulty, they ultimately concluded that the professional development contributed to heightened observation skills and created opportunities for feedback and reflection. They also noted that their instructional practice improved, based on student feedback (Chong & Kong, 2012). One of the researchers from that study analyzed the same data with a different partner for a second article and concluded that lesson study pushed teachers to “revise their pedagogical knowledge and pay closer attention to student thought processes as they work jointly and purposefully to enhance student learning” (Lawrence & Chong, 2010, p. 570), thereby illustrating lesson study's potential for modifying teacher knowledge.

All the studies discussed in this section up to this point stressed the need for quality professional development catered to individual teacher needs. Professional development can

strengthen teachers' ability to better integrate literacy instructional skills in their instruction (Doubet & Southall, 2018), modify teacher beliefs related to teaching literacy (Borg, 2011), and change teacher instructional practice (Nichols et al., 2007). Lesson study, a Japanese professional development strategy that is collaborative and context-specific (Cheung & Wong, 2014), has been used effectively for mathematics and science professional development (Puchner & Taylor, 2006; Yoshida, 2012), and has also shown positive effects for literacy instruction (Pella, 2011).

Online professional development. Given the continuing threat posed by COVID-19, any professional development program developed during this time must be adaptable to a virtual learning environment. There are reasons to consider hybrid models of professional development beyond the threat of a pandemic closing schools down. Darling-Hammond and McLaughlin (2011) explained that one powerful form of learning for educators arises from belonging to learning communities that extend beyond the four walls of a classroom or the physical school building, and Darling-Hammond et al. (2017) wrote that technology-facilitated professional development can foster collaboration that can be effective in improving student achievement. In one study of the different effects of online and face-to-face professional development, the authors concluded that teachers gained knowledge in both scenarios, and no significant differences were reported between the two (Fishman et al., 2013). Online professional development also works well when a small group of educators need professional development not easily accessible within their home schools and districts (Bates, Phalen, & Moran, 2016) and can help ameliorate the challenges many teachers face in obtaining quality professional development and professional development resources (Darling-Hammond, 2006). A number of researchers have implemented online-only or hybrid professional development programs designed to improve instruction (Garbe, 2012; Skultety, Gonzalez, & Vargas, 2017), and some

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have built their programs around the aforementioned concept of lesson study (Cady & Rearden, 2009; Pella, 2011).

Lesson study is traditionally centered on mathematics instruction, so it is unsurprising that one of the earliest studies on a digital model of lesson study was delivered to middle and high school mathematics teachers (Cady & Rearden, 2009). Mathematics teachers were asked to be physically present in their classrooms in groups of 3-5 while participating in professional development modules on Centra, which is a type of learning management software, in conjunction with completing activities on Blackboard, another piece of learning management software. The program was designed to enhance teachers' knowledge of mathematics concepts, provide video support for instructional improvement through example lessons, and help teachers understand the connection between instruction and student understanding (Cady & Rearden, 2009). Participants were given the choice between a Cognitively Guided Instruction framework or a lesson study framework, and 14 participants were given the opportunity to attend four courses spanning one semester each. Eight teachers completed at least three of the courses, and the authors used a concurrent triangulation mixed methods approach to analyze qualitative and quantitative data strands (Cady & Rearden, 2009). The results of the lesson study professional development were positive, as student scores on the state mathematics assessment were better for those students whose teachers participated than they were for those whose teachers did not. Several of the teachers who participated in the lesson study also reported enhanced pedagogical and content-area knowledge (Cady & Rearden, 2009).

Lesson study has also been used as the basis for professional learning in studies that utilize both remote and on-premises spaces. A qualitative study explicitly aimed at literacy teaching focused on four middle school language arts teachers who were participants in a hybrid

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online/in person lesson study centered on the teaching and learning of writing (Pella, 2011). The author's research questions focused on determining how lesson study professional development contributed to "transformations in teacher perspectives and pedagogy" (Pella, 2011, p. 108).

Participants met monthly and communicated via email on a weekly basis over the course of one year and designed, conducted, and revised their lessons collaboratively during this time period (Pella, 2011). Data collected included field notes, email exchanges, written reflections from each participant, and interviews (Pella, 2011). The author ultimately concluded that, as they "negotiated theoretical tensions in teaching and learning writing, participants experienced transformations in their perspectives and pedagogy" (Pella, 2011, p. 108). These conclusions provide a glimpse into lesson study's transformative potential.

Hybrid lesson study has been used for mathematics as well as ELA. A 2014 study focused on a hybrid model of online and in-person mathematics-based lesson study was conducted across 26 schools in two districts and including 80 participants (D, Fredenberg, & Bridget, 2014). The researchers supplemented traditional lesson study activities like collaborative lesson design, the teaching of the lesson while being observed by participants in the professional development program and debriefing to revise the lesson with a website designed to foster collaboration and communication among the participants. The website provided a centralized location for the storage of materials related to the lesson study and featured sections including resources, links, and posts (Nickerson et al., 2012). The website ultimately provided a place for several of the teachers to engage in sustained discussions that spanned geographic location and time, allowed participants to focus their thinking on student learning and pedagogy, and contributed to participants' maintaining personal learning communities. The authors believed the hybrid adaptation was helpful to American teachers, who generally have less time

allocated to professional development and peer collaboration than their Japanese counterparts (Nickerson et al., 2012).

Summary and Brief Overview of the Proposed Intervention

As explored in Chapter 2, the results of the needs assessment study indicate that school administrators should consider intervening in teacher knowledge and beliefs about literacy and boys and may improve male student literacy outcomes by providing robust inservice professional development on effective instructional strategies for teaching literacy. This chapter outlined three categories of potential interventions to mitigate the gender gap in literacy achievement. These were (a) interventions designed to modify teacher knowledge and/or beliefs, (b) those designed to improve general literacy outcomes for K-12 students, and (c) those designed to influence the gender achievement gap in literacy through changes in teacher practices.

This literature synthesis, in conjunction with the needs assessment conducted for Chapter 2, suggests that an intervention that (a) has the potential to modify teacher knowledge and beliefs, (b) includes professional development on research-based literacy instructional practices, and (c) prioritizes strategies that are gender-relevant has the potential to be impactful. This synthesis further revealed that inservice professional development has changed teacher knowledge and beliefs related to literacy (Borg, 2011; Doubet & Southall, 2018), and determined that specific literacy instructional practices support male literacy (Bristol, 2015; Ladson-Billings, 1994; S. A. Robinson, 2019). Based on the research discussed in this literature synthesis, inservice professional development was chosen as the method of delivery for the proposed intervention.

Balanced literacy and gender-relevant instructional strategies for teaching literacy have been successfully incorporated into classroom instruction through professional development for

active teachers. Balanced literacy studies have focused on providing teachers with an understanding of the components of balanced literacy and assistance integrating those components into lessons (Fitzgerald & Noblit, 2000; Frey et al., 2005; Kennedy & Shiel, 2010). Further, there is also evidence that gender-relevant instructional strategies can be implemented through inservice professional development (Bristol, 2015; Brozo, 2010; Carroll, 2016; Gresham & Gibson-Langford, 2012; Guenther, 2017; L. Martinez, 2010).

A professional development series that provides inservice teachers support implementing a gender-relevant literacy program based on these and several other existing studies can also offer teachers knowledge of instructional strategies for learners of all types, and in the process potentially influence existing knowledge and beliefs about literacy and student gender. Given the results of these studies, there is research supporting the integration of GRP and BL strategies into literacy classrooms. The primary challenge then becomes finding a delivery method that will accommodate this change package (Bryk, Gomez, Grunow, & LeMahieu, 2015) in the specific context of SSCS. Further, at the time of writing, the COVID-19 looms large as a chronosystem and exosystem factor that may require this intervention program to be conducted remotely, which means the inservice professional development program must accommodate this radical potential shift in delivery.

Japanese lesson study has been proven to be a viable way to conduct professional development that consists of on-site and virtual activities (Cady & Rearden, 2009; Nickerson et al., 2012) and targets literacy pedagogy and instruction (Ermeling & Graff-Ermeling, 2014). Lesson study is active and collaborative (Lewis, 2015). Further, it can be made content-focused and can be of sustained duration if the program developer designs it to be so (Lewis & Hurd, 2011). If the lesson study professional development is built to accommodate specific elements of

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both balanced literacy and GRP, it has the potential to positively affect both domains. Research on lesson study indicates that it can have a positive impact on teacher and student learning (Cheung & Wong, 2014), can be conducted remotely (Benedict et al., 2013), and adheres to many of the best practices of professional development and improvement science (Lewis, 2015). For these reasons, it provides a strong basis for the professional development to be used for the proposed intervention.

In order for inservice professional development to be effective, program developers should foreground opportunities for active learning (Darling-Hammond et al., 2017), and the design should be content-focused, be of sustained duration often ranging from a semester to a year, involve collective participation (Desimone & Garet, 2015), and focus on instructional coherence (Berends, Goldring, Stein, & Cravens, 2010). There is evidence that both skills and critical-cultural approaches to literacy instruction are effective in supporting student learning (Bambha-Arora, 2018; Zeng, 2019). The proposed intervention uses elements of both approaches to build an intervention with the capacity to modify teacher knowledge, beliefs, and pedagogical practice. Participants will be provided with an accounting of research-based GRP and balanced literacy strategies and will be asked to choose 1-2 components to focus on during their 10-week lesson study. During this time, they will integrate their selected components into either a pre-existing lesson recommended by participants, or a lesson designed collaboratively by participants. The integration of these components into a collaboratively designed lesson may have positive effects on the pedagogical and content knowledge of teachers at SSCS and has the potential to affect teacher knowledge and beliefs about boys' literacy as a result.

One significant challenge related to designing an intervention of this kind is the relative lack of existing interventions geared towards the application of gender-relevant pedagogical

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strategies to literacy instruction. In the absence of such studies, the work of the aforementioned authors provided a series of interventions that integrated boy-friendly instructional strategies into literacy classrooms. By including concepts similar to GRP, like boy-friendly strategies (Brozo, 2010) and teaching fitted to boys' lives (Michael Reichert & Hawley, 2010), a broader conception of GRP is made possible. Those strategies have been identified for teachers and will be shared along with the strategies delineated in the New York City Department of Education's balanced literacy overview (2003). Chapter 4 will present a potential intervention that focuses on participants building a collaborative lesson through lesson study that contains elements of both balanced literacy and GRP. A small group of Grades 3-8 ELA teachers from SSCS will work together to build a lesson that integrates components of each approach with the goal of improving teacher knowledge of boys and literacy, teacher beliefs about boys and literacy, and teacher knowledge of research-based literacy instruction. Chapter 4 also provides the methodology used to evaluate the intervention.

Chapter 4

Intervention Procedure and Program Evaluation Methodology

Teacher beliefs and knowledge about students as well as pedagogical and content knowledge factor into student outcomes (Gess-Newsome et al., 2019), and a number of interventions have sought to influence these factors (Cash et al., 2015; Fleming, 2013; Hamre et al., 2012). Bristol (2015) conducted a study during which he assisted a teacher in successfully implementing a gender-relevant approach to literacy instruction, and in doing so examined how teachers' unconscious beliefs around gender presented themselves in both curriculum design and classroom management. Other studies centered on inservice professional development have successfully influenced or modified teacher beliefs (Borg, 2011), knowledge (Doubet & Southall, 2018), or both (Ng & Leicht, 2019). Balanced literacy strategies have also been effectively integrated into inservice teachers' pedagogy through professional development (Wexler et al., 2018; S. Wood & Jocius, 2013) as have elements of gender-relevant pedagogy (Bristol, 2015; DeFauw, 2016).

Purpose of the Study

The problem of practice guiding this study is the literacy achievement gap between elementary and middle school boys and girls, and the teacher knowledge, beliefs, and pedagogy that could contribute to narrowing the gap. The purpose of this intervention was to show change to teacher knowledge and beliefs through the integration of gender-relevant pedagogical strategies and components of the balanced literacy approach into participants' instructional practices for literacy through lesson study. Lesson study is an improvement science-based approach to professional learning (Dudley, 2014; Lewis, 2015). The Japanese concept of lesson study fulfills many of the requirements for high quality professional learning including being

collaborative, centered around active learning (Darling-Hammond et al., 2017), relevant to teacher's practices (Lewis & Hurd, 2011), and content-focused (Desimone & Garet, 2015).

Research Questions

Table 4.1 indicates the research questions that were developed to guide this study. The first two research questions relate to process and the last two to outcomes.

Table 4.1

Intervention Research Questions

Number	Research Question
Research Question 1	How did participants describe the quality of program delivery offered during the intervention?
Research Question 2	To what extent were all the intended components of the intervention provided to program participants?
Research Question 3	What changes if any did Grades 3-8 English language arts teachers perceive in their knowledge and beliefs related to boys and literacy after professional development on balanced literacy and gender-relevant pedagogy?
Research Question 4	What changes if any did the researcher perceive in Grades 3-8 English language arts teachers' knowledge and beliefs related to boys and literacy after participation in professional development focused on balanced literacy and gender-relevant pedagogy?

Research Design

The next sections describe the study's process and outcome evaluation plans, context, participants, methods of data collection, and methods of data analysis. The summary matrix (Appendix E) provides an overview of the alignment among research questions, constructs, data sources, data collection tools, frequency of data collection, and data analysis methods.

This case study utilized qualitative and quantitative measures to determine if professional development on balanced literacy and gender-relevant pedagogy influences teachers' knowledge and beliefs about boys and boys' literacy, as well as knowledge of research-based instructional

literacy practices. A mixed methods approach was chosen because this design allows the quantitative strands to inform the qualitative strands, and using a multiplicity of data sources provides more opportunities for triangulation (Lochmiller & Lester, 2016). Further, mixed methods research is most closely associated with a pragmatic worldview, as the focus is on the outcome of the study and is oriented towards real world applications of the knowledge derived through research (Creswell & Plano Clark, 2017). The logic model in Appendix F shows the alignment between research questions, measures that operationalize the variables of interest, data collection, and data analysis.

Case study is particularly useful for the analysis of teacher knowledge and beliefs and has specific value to beginning researchers. Olafson, Grandy, and Owens (2014) wrote that “case study methodology is well-suited to the study of teachers’ beliefs and practices as they occur in the natural setting of the classroom” (p. 134), and case studies allow the researcher to offer extensive, in-depth answers related to questions pertaining to a social phenomenon (Creswell & Plano Clark, 2017), which in this case is boys’ underachievement in literacy. Case studies also emphasize interpretation (Stake, 1995) and provide researchers with flexibility (Yin, 2017). Yin believed that flexibility could be valuable to a novice researcher. It is possible that, over the course of a case study, research questions may change in a way that is desirable to the researcher, and Yin (2017) stresses that changes need to be intentional and recognized openly by the researcher for the study to remain credible. For a smaller group of participants, a case study provides the researcher with the unique opportunity to understand the complexity of interactions taking place in a naturalistic setting (Creswell & Plano Clark, 2017).

While the case study methodology has numerous strengths, there are also limitations worth considering. First, case studies are often focused on small samples, so while they may help

researchers produce both petite and grand generalizations, Stake (1995) explained that case studies are generally most adept at particularization. Additionally, case studies can be particularly challenging for novice researchers, as conducting them requires the researcher to have a thorough understanding of core design, case identification, and criteria for case selection (Creswell & Plano Clark, 2017). Further, because this is an exploratory case study, it is unlikely that the researcher will be able to establish causal relationships; it may be more likely that this study improves causal descriptions (Shadish, Cook, & Campbell, 2002). The final potential limitation is researcher bias, as the simple act of generating these research questions may reveal pre-existing assumptions on the part of the researcher that need to be considered and controlled for during the experiment and data analysis processes (Hancock & Algozzine, 2017).

Process Evaluation

Designing an intervention requires the researcher to consider questions related to both the implementation of the program as well as its success in achieving the intended outcomes of the program. The process evaluation research questions need to be aligned with process evaluation components. Two components of process evaluation related to fidelity of implementation were analyzed through research questions investigating quality of delivery and dose delivered.

A number of researchers have offered definitions of fidelity as it pertains to process evaluation (Baranowski & Stables, 2000; Dusenbury, Brannigan, Falco, & Hansen, 2003; Rossi, Lipsey, & Henry, 2019). Baranowski and Stables (2000) tied fidelity to the implementation of a program and defined it as the “extent to which the program was implemented as designed” (p. 160), while Rossi et al. (2019) described implementation fidelity as the alignment between the planned program and the implemented program operations. Understanding the fidelity of an intervention’s implementation is critical, since a program may be designed effectively but

delivered with low fidelity and thus unsuccessful in achieving its stated goals (Dusenbury et al., 2003). Studying the fidelity of an implementation can also provide insight into a program's feasibility, promote deeper understanding of why an intervention or its individual components succeed or fail, and illustrate how program changes impact outcomes (Dusenbury et al., 2003).

Quality of delivery. Quality of program delivery is one of the five primary ways fidelity has traditionally been assessed and describes how well a program and its leader or leaders draw attention to the elements the researcher intends to foreground (Dusenbury et al., 2003). Seeking to understand participants' perception of program delivery quality provides participants with a voice in the implementation process, and higher quality of delivery may enhance participant responsiveness (Dusenbury et al., 2003). Further, because stakeholder voices should be represented in these evaluative processes, inviting participants to be a part of the process evaluation effort is an important step (Stufflebeam, 2003). For the purposes of this study, quality of delivery represents participant perceptions of the quality of the lesson study collaboration, lesson observations, and digital resources including videos of lessons being taught and relevant articles and research that includes the components of balanced literacy and gender-relevant pedagogy. This process evaluation examined quality of program delivery from the perspective of the participant through exit tickets that addressed participant perceptions of the quality of program delivery, as well as journal entries and interview responses. Given that I was a novice at leading professional learning sessions, quality of delivery served a key metric to determine the factors most influential in post-intervention outcomes. The activities that were intended to produce the outputs represented in Appendix F are being examined through the first process research question.

Dose delivered. The second research question is intended to assess fidelity by determining whether the appropriate treatment dose was delivered to participants (Saunders, Evans, & Joshi, 2005). Dusenbury et al. (2003) indicated that dose delivered could be determined through examining provider self-reporting, extrapolations based on observations, and participant attendance data. Dose delivered can also be connected to Baranowski and Staples' (2000) conception of reach, insofar as it is intended to determine the number of participants receiving a component of the intervention (Baranowski & Stables, 2000). Quantifying the intervention dose delivered can be done by determining the extent to which each unit within the intervention was delivered (Saunders et al., 2005). This was accomplished by analyzing observation protocols, interview responses, journal entries, and exit ticket data to ascertain if participants received the appropriate dose as determined by the researcher, and to understand if they felt that they received the full spectrum of intervention-related activities. By ensuring that all participants received the appropriate treatment dose, the researcher can isolate attendance- and participation-based program failures versus programmatic failures.

Outcome Evaluation

Two mediating variables were at the center of this study: (a) participant perceptions of what changes if any they perceive in their knowledge and beliefs related to boys and literacy after professional development on balanced literacy and gender-relevant pedagogy and (b) researcher perceptions of post-intervention changes to participants' knowledge and beliefs related to boys' literacy during and after participation in professional development focused on gender-relevant pedagogy. Research Questions 3 and 4 sought to measure the effects of balanced literacy and gender-relevant pedagogy professional development on teacher knowledge and beliefs related to boys and literacy.

Context

This context of this study is St. Stephen's Catholic School, a coeducational urban Catholic school that serves kindergarten through eighth-grade students. The school is situated in a bedroom community in a densely populated borough that is part of a major metropolitan city in the northeastern United States, and is governed independently by a board of education, pastor, and principal, with additional oversight provided by the local Catholic diocese. Total enrollment for 2019-20 was 250 students, of which 125 were male, and 92 male students were enrolled in Grades 3-8 during this time. Of the nine full-time teachers who teach on a daily basis, four met the criteria for inclusion in this study. This study was conducted using a convergent parallel mixed methods design.

Method

Convergent parallel mixed methods design. This exploratory case study used a mixed methods design, and validity was established through the simultaneous triangulation, which Morse (1991) defined as the use of qualitative and quantitative methods and data at the same time. Exit tickets, a quiz, a survey, and an observation protocol served as the primary sources of quantitative data to be analyzed. Qualitative data collected through semi-structured interviews, field notes, a researcher diary, and digital journal reflections were instrumental in assessing overall program outcomes. Exploratory case study was chosen as the research design because case studies can work well for smaller sample sizes (Yin, 2017) and offer opportunities to describe one or a small number of cases deeply and thus are not designed to be representational or generalizable (Stake, 1995). They can, however, help set up for a larger, broader study on the same or similar topics in the future (Yin, 2017) and prioritize the gathering and interpreting of

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diverse sets of data (Creswell & Plano Clark, 2017). Exploratory case studies often seek to answer how or why a particular phenomenon has occurred (Lochmiller & Lester, 2016).

Using a convergent parallel mixed methods design may have also helped ensure that, although conclusions drawn were not necessarily generalizable, they do possess inference transferability (Teddle & Tashakkori, 2003). Population transferability, which is an indication of whether the conclusions reached will hold true for other participant groups, and operational transferability, which sheds light on whether or not the same conclusions might emerge in a study using similar instruments and methodologies (Teddle & Tashakkori, 2003), may be ways this research can help guide and shape future studies of teachers' knowledge and beliefs related to boys' literacy, and studies of teachers' knowledge of research-based instructional literacy strategies.

Participants

The participants in this sample were Grades 3-8 elementary school and resource room ELA teachers at St. Stephen's Catholic School. All participants were either the classroom teacher of record for Grades 3-8 ELA classes or resource room teachers providing literacy support to students. Convenience sampling in conjunction with criterion sampling were used to identify potential teacher participants. Convenience sampling indicates that the participants were chosen because of location or ease of access, among other reasons (Patton, 1990), and the potential participants in this study were viable because they teach at the same school and therefore were geographically convenient for the researcher, and because they teach ELA, the subject area of interest in this study. Criterion sampling requires the researcher to select cases that share predetermined characteristics related to the study (Patton, 1990), and for this study all participants were required to be ELA teachers in a Catholic school.

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Recruitment occurred through emails sent to the participants' school email addresses. A standard script was sent to all eligible participants explaining the study and inviting them to participate (Appendix G). Verification that the criteria was met by the intended participants was determined in consultation with the school's principal. All teachers who did not both teach students from Grades 3-8 and literacy were excluded from participation. The maximum number of participants for the study was four, which was the total number of Grades 3-8 and resource room ELA teachers. Potential participants in this study were all White women in their 50s. Data collected during the needs assessment indicates that the participants' years of experience ranged from 10 to 27, and all participants were either Italian American or Irish American.

Measures and Instrumentation

The primary qualitative measures used in this study consisted of mid- and post-intervention semi-structured interviews, the researcher's field notes, the researcher's diary, and journal reflections posted to Google Classroom by participants. Quantitative measures consisted of Likert scale exit ticket responses to five exit ticket prompts, an observation protocol to record attendance data, sessions completed, journal entries posted, and modules viewed, the Knowledge about Boys and Reading Instruction quiz (KBRI) adapted from Fleming (2013), and the Beliefs about Boys and Reading Instruction survey (BBRI) adapted from (Alloway et al., 2002). The inclusion of qualitative and quantitative measures provided opportunities for triangulation, complementarity, development, and expansion of the research (R. B. Johnson & Onwuegbuzie, 2004).

Semi-structured interview protocol. The first instrument, semi-structured interviews, recorded qualitative data through individual interviews with participants that were recorded, analyzed, and coded by the researcher (see Appendix H). Semi-structured interviews were

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chosen because they provided the researcher with an opportunity to explore participants' perceptions and beliefs about sensitive, complex issues, and offered the researcher a chance to further probe responses and seek clarification when necessary (Barriball & While, 1994). Two semi-structured interviews with each participant were convened during this study: one after the fifth session, and one within three days of the final session. Semi-structured interview prompts included (a) How would you describe the quality of program delivery offered during the intervention?, (b) To what extent were all of the intended components of the intervention provided to you?, (c) What changes if any do you perceive in your knowledge related to boys and literacy after professional development on balanced literacy and gender-relevant pedagogy?, and (d) What changes if any do you perceive in your beliefs related to boys and literacy after professional development on balanced literacy and gender-relevant pedagogy? Semi-structured interview questions were designed to measure several variables: Participant perceptions of the quality of program delivery, the extent to which components were made available/provided to study participants, participant perceptions of post-intervention changes to their knowledge and beliefs related to boys' literacy, and researcher perceptions of post-intervention changes to participants' knowledge and beliefs related to boys' literacy.

Field notes. The researcher recorded field notes after every session of the intervention and whenever an event of significance to the intervention occurred outside a session. Additionally, video and/or audio from each session was reviewed twice: once shortly after completion of the session, and then again two months after the intervention's conclusion. Field notes were taken during each review to ensure that session data was captured thoroughly and accurately. A field note template was used to collect information including date of activity, date the field note was written, where the session's activities took place, who participated in the

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activity, and the names and nature of the session activities (see Appendix I). Multiple qualitative and quantitative data collection methods provided opportunities for triangulation, and analyzing field notes skeptically provided the researcher with an opportunity to highlight disconfirming evidence (Miles, Huberman, & Saldaña, 2014).

Researcher's diary. While field notes provided a record of intervention activities and the researcher's observations related to these activities, a researcher's diary was also maintained to provide additional documentation and opportunities for researcher reflection. A research diary can track the researcher's experience approaching the field, contacting and interacting with participants during interviews and other activities, and provide an overview of how the researcher applied the appropriate methods to the research project (Flick, 2009). Additionally, a researcher's diary provides the researcher with an opportunity to clarify his or her thoughts and feelings, and to consider factors that may have influenced the analysis of research data (K. A. Clarke, 2009). The diary used for this research project was adapted from Cooksey and McDonald's (2019) template (see Appendix M).

Journal reflections. Reflection is a foundational component of learning (Dewey, 1938), and journal writing is one way for study participants to generate reflection on their experience (Stevens, Emil, & Yamashita, 2010). Journals have been used in virtual professional development programs to provide deeper understanding into the experiences of participants (Michael, 2012), and teacher journal reflections have been used in virtual lesson study professional development activities (D. Gee & Whaley, 2016). Journal reflection prompts reiterated questions asked through other instruments, and prompts included, "What changes if any do you perceive in your knowledge related to boys and literacy after professional development on balanced literacy and gender-relevant pedagogy?" and, "What changes if any do

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you perceive in your beliefs related to boys and literacy after professional development on balanced literacy and gender-relevant pedagogy?” Appendix J contains the journal reflection template and prompts. In keeping with lesson study’s improvement science focus, journal prompts that asked participants for feedback on what aspects of each session worked well and how sessions could be improved were also included.

Exit tickets. The first quantitative instrument that was utilized in this study were exit tickets. Exit tickets allow researchers to gain insight into how the experiences of individuals involved in a research project differ (Hamner et al., 2006) and provide opportunities for formative assessment throughout the intervention that are critical from an improvement science perspective (Fowler, Windschitl, & Richards, 2019). Exit tickets were administered after each session as a mode of formative evaluation. These exit tickets assessed both process and outcome objectives, and prompts included (a) The quality of program delivery during today’s session was high, (b) Today’s session met its stated objective(s), (c) Today’s session modified my knowledge of teaching literacy to boys, (d) Today’s session modified my beliefs about teaching literacy to boys, and (e) Today’s session added to my knowledge of balanced literacy instruction. Teachers responded to the prompts using a five-point Likert scale (see Appendix K). Several variables were assessed through these exit tickets including participant perceptions of the quality of program delivery, participant perceptions of post-intervention changes to their knowledge related to balanced literacy, and participant perceptions of post-intervention changes to their beliefs related to balanced literacy.

Observation protocol. The second quantitative measure this study used was an observation protocol that tracked participants’ attendance at synchronous lesson study professional learning sessions, completion of digital journal reflections, completion of exit

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tickets, and session work completed (see Appendix L). The purpose of the observation protocol was to analyze participant attendance, the extent to which components were made available/provided to study participants, and the extent to which participants completed all the activities associated with each session.

Knowledge about Boys and Reading Instruction Quiz (KBRI). The KBRI assessment (Fleming, 2013) is a quiz designed to assess participants' knowledge related to boys and reading instruction and was administered pre- and post-intervention to gauge shifts in participants' knowledge related to boys and literacy (see Appendix A). Prompts included true/false questions like "Gender achievement gaps in reading tend to equal out in high school," and multiple-choice questions like, "When student scores on standardized tests are compared based on gender, female students generally score higher than male students in which of the following content areas?" The KBRI was designed to analyze post-intervention changes to participants' knowledge related to boys and literacy. This instrument was validated through a process described in Chapter 2.

Beliefs about Boys and Reading Instruction Survey (BBRI). The BBRI survey (Alloway et al., 2002) was intended to capture participants' beliefs about boys and literacy instruction (see Appendix B). Prompts included "(a) Teachers need to understand more about male culture to improve reading instruction for boys, (b) There are not enough books of high-interest value to boys available in schools, and (c) Boys prefer technological forms of literacy to print-based forms of literacy." The BBRI survey is like the KBRI but was intended to measure changes to participants' beliefs related to boys and literacy. Two participants completed both the KBRI and BBRI during the needs assessment, so half of the participating teachers were familiar with these instruments. This is discussed further in the chapter's concluding section. Like the KBRI quiz, this instrument was also validated through a process detailed in Chapter 2.

Procedure

The final section of this chapter details the intervention design, data collection methods, and data analysis procedures to be utilized in this study. Qualitative and quantitative data were collected and analyzed using a mixed methods convergent parallel design (Creswell & Plano Clark, 2017). Mixed methods research is often associated with the pragmatic paradigm, which posits that quantitative and qualitative data are compatible, and thus researchers can comfortably use and integrate them in their work (Teddlie & Tashakkori, 2003).

Intervention. This section purposefully describes the lesson study as planned. Changes made to the intervention were captured in field notes and the researcher's diary and will be discussed in Chapter 5. This intervention was designed based on the Japanese concept of lesson study, which is conceptually rooted in the principles of improvement science (Lewis, 2015) and involves the collaborative analysis, improvement, testing, and re-testing of a lesson designed with specific goals in mind. The central principles of lesson study can be expressed as a cycle that starts with the study of curriculum and goal formulation, moves to planning or revising a research lesson, then shifts to the delivery of the research lesson before moving into a period of reflection on that lesson (Lewis & Hurd, 2011). Quality lesson study differs from traditional professional development in a number of ways: it begins with a question rather than an answer, is participant- rather than expert-driven, shifts communication from trainer to teachers to teachers to teachers, and considers practice as its own form of research (Lewis & Hurd, 2011).

The timeline of this intervention began in November 2020 with teacher recruitment and the first intervention session and concluded in February 2020 with the final session and semi-structured interviews. According to the original design of this intervention, a total of 10 sessions were to take place during this period. In between sessions, discussion activities were posted to

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Google Classroom to provide additional opportunities for participant feedback and data collection. While the original plan for these sessions involved ten on-site, in-person workshops, planning for potential school closings due to the 2020 COVID-19 pandemic initially led to a shift to fully online virtual synchronous sessions. All intervention activities were conducted remotely including the two lesson observations, which were shifted to the Google Meet platform currently in use at SSCS and conducted with students both in class and attending class remotely. Most sessions were scheduled to last one hour and were intended to take place during time the participants would have been receiving traditional professional development. The two lesson observation sessions were scheduled to last 50 minutes. All sessions were recorded. Virtual synchronous sessions were livestreamed via Google Meet. Two notebook computers, a Dell XPS 15 and a 16" MacBook Pro, were used to facilitate in-person streaming and session recording. Table 4.2 provides details on session numbers, session length, location and timeframe, session activities, and the instruments and measures used to evaluate each session.

Table 4.2

Intervention Design, Schedule, and Instrument Alignment

Session	Session Length	Location and Date	Session Activity Description	Instruments and Measures
1*	1.5 hours	Virtual November 2020	<ul style="list-style-type: none">- Introduction to gender-relevant pedagogy, balanced literacy, and lesson study- All users are enrolled in the appropriate Google Classroom instance and are shown how to access resources- A discussion of shared goals takes place- Participants are asked to review existing standards, course texts, and resources	<ul style="list-style-type: none">- Pre-intervention BBRI- Pre-intervention KBRI- Observation protocol- Exit tickets- Field notes- Researcher diary

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			- Participants respond to an instructor-led discussion thread	
Follow-up	n/a	Post-Session 1	Asynchronous journal activity	- Journal entry responses
2	1 hour	Virtual November 2020	<ul style="list-style-type: none"> - Participants review gender-relevant pedagogy and balanced literacy resources posted to Google Classroom - Participants respond to a discussion prompt on Google Classroom - Begin planning the initial lesson to be studied 	<ul style="list-style-type: none"> - Observation protocol - Exit tickets - Field notes - Researcher diary
Follow-up	n/a	Post-Session 2	Asynchronous journal activity	- Journal entry responses
3	1 hour	Virtual November 2020	<ul style="list-style-type: none"> - Collaboratively gather instructional materials related to the 3-8 ELA curriculum - Continue planning the initial lesson to be studied 	<ul style="list-style-type: none"> - Exit tickets - Observation protocol - Field notes - Researcher diary
Follow-up	n/a	Post-Session 3	Asynchronous journal activity	- Journal entry responses
4	1 hour	Virtual November 2020	<ul style="list-style-type: none"> - Complete the initial lesson to be studied - Focus on core competencies of balanced literacy and GRP, as well as instructional aims provided by teachers and principal 	<ul style="list-style-type: none"> - Exit tickets - Observation protocol - Field notes - Researcher diary
Follow-up	n/a	Post-Session 4	Asynchronous journal activity	- Journal entry responses
5	45 minutes	On site December 2020	<ul style="list-style-type: none"> - Selected teacher teaches the lesson under observation of researcher and participants - Individuals take notes for sharing during the debriefing 	<ul style="list-style-type: none"> - Observation protocol - Field notes - Researcher diary
Follow-up	n/a	Post-Session 5	Asynchronous journal activity	- Journal entry responses

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6	45 minutes	On site December 2020	<ul style="list-style-type: none"> - Observation data is discussed during a debriefing dialogue - A plan is made for the next round of revision 	<ul style="list-style-type: none"> - Exit tickets - Observation protocol - Field notes - Researcher diary
Follow-up	n/a	Post-Session 6	Asynchronous journal activity	<ul style="list-style-type: none"> - Journal entry responses
7	1 hour	Virtual January 2020	<ul style="list-style-type: none"> - The initial lesson is revised based on feedback obtained during the observation 	<ul style="list-style-type: none"> - Exit tickets - Observation protocol - Field notes - Researcher diary
Follow-up	n/a	Post-Session 7	Asynchronous journal activity	<ul style="list-style-type: none"> - Journal entry responses
8	1 hour	Virtual January 2020	<ul style="list-style-type: none"> - Finalize improvements and gather feedback on revised lesson 	<ul style="list-style-type: none"> - Exit tickets - Observation protocol - Field notes - Researcher diary
Follow-up	n/a	Post-Session 8	Asynchronous journal activity	<ul style="list-style-type: none"> - Journal entry responses
9	45 minutes	On site February 2020	<ul style="list-style-type: none"> - Selected teacher teaches the revised lesson under observation of researcher and participants - Individuals take notes for sharing during the debriefing 	<ul style="list-style-type: none"> - Exit tickets, - Observation protocol - Field notes - Researcher diary
Follow-up	n/a	Post-Session 9	Asynchronous journal activity	<ul style="list-style-type: none"> - Journal entry responses
10	45 minutes	Virtual February 2020	<ul style="list-style-type: none"> - Observation data is discussed during a debriefing dialogue - A plan is made for the next round of revision, which will occur outside the bounds of this research project 	<ul style="list-style-type: none"> - Exit tickets - Observation protocol - Field notes - Researcher diary
Follow-up	n/a	Post-Session 10	Asynchronous journal activity	<ul style="list-style-type: none"> - Journal entry responses
*Ongoing	n/a	November-February	<ul style="list-style-type: none"> - Resources are shared through Google Classroom for participant 	<ul style="list-style-type: none"> - Field notes - Researcher diary

review and analysis as well as
ongoing asynchronous discussion
- Discussion prompts sometimes
posted between sessions

Google Classroom was added as a component of the intervention to ensure that the shift to virtual professional development was not disruptive and utilized a platform familiar to the participants. Teachers at SSCS are expected to make regular use of Google Classroom, as it served as the school's learning management system, and Google Meet was the videoconferencing software used by teachers, students, and administrators during the school's initial closure due to COVID-19. Classroom session modules included shared resources like articles on GRP and balanced literacy as well as videos of lesson studies and effective lessons. Additional space for personal journal reflections and a discussion space combined with the videos and readings were intended to provide opportunities for further study, communication, and collaboration during this project. The content created within Google Classroom was also treated as data to be analyzed and was captured in the researcher's diary and field notes. Throughout the sessions, the researcher performed ongoing synchronous memoing of notable Classroom activities and interactions as part of his field notes and recorded more extensive field notes during two post-session reviews of each session's recording. Additionally, the researcher maintained a researcher's diary to allow for reflection and consideration of the intervention processes. Journal reflections were coded qualitatively and participation in session activities was analyzed using an observation protocol and exit tickets.

Each session was to focus on a specific lesson study goal with the aim of producing and revising a high-quality literacy-focused lesson. Session 1, for example, was intended to introduce the concepts associated with lesson study, the critical elements of gender-relevant pedagogy, and key components of a balanced literacy approach to teaching reading. Tables 4.3 and 4.4 provide

an overview of these components. Key elements of GRP were determined through a review of the literature related to pedagogical strategies described as boy-friendly, geared towards boys, gender-relevant, or expressly geared towards male learners, and a total of 14 components were identified during this process. The essential components of balanced literacy were similar across a number of studies (Pressley & Allington, 2014; Tompkins, 2016; Willows, 2002), and the New York City Department of Education (2003) provided a clear and thorough overview of these elements. As such, the New York City Department of Education overview was used to inform this study.

Table 4.3*Components of Gender-Relevant Approaches to Literacy Instruction*

Component	Source	Definition
Allow for games and competition	Carroll (2016); Gresham and Gibson-Langford (2012)	Research indicates that some boys enjoy the risks and challenges of classroom competitions, and these competitions in video games, interactive whiteboard activities, and team-oriented activities provide students with chances to build peer relationships and celebrate shared success
Build relationships/working alliances between students and teachers/productive partnerships	Brozo (2006); Martinez (2010); Nelson (2016); Reichert and Hawley (2009)	Connect with students and their interests, which may provide additional pathways for students to connect with literature. Working alliances ask teachers to challenge their students thoughtfully, hold high expectations for all students, and express command of and interest in the subject matter
Choice of activities	Carroll and Beman (2015); DeFauw (2016)	Research indicates that boys in particular benefit from choice and active, high interest learning experiences (Alloway et al., 2002).
Choice of texts	Bristol (2015); Brozo (2010); Martinez (2010); Taylor (2011)	Providing boys with texts they can relate to and stories in which they can imagine themselves as participants. As boys age, their reading interests begin to encompass visually stimulating texts including graphic novels, trading cards, as well as genres like horror and action

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Choice of topics	Carroll and Beman (2015); DeFauw (2016)	Honor both student voices and choices by allowing students to integrate humor, horror, and even elements of violence into their reading and writing activities. This may require parental/guardian permission. Allowing boys to read and write about violence, among other things, “provides a safety net to deal with issues of danger or power” (DeFauw, 2016, p. 52)
Conferencing	DeFauw (2016); Martinez (2010)	Teachers work one-on-one or in small groups to support students’ as they write, ensuring specific support for boy writers’ content development, which should ultimately lead to improved genre fluency when reading
Engage personal interests and passions	Brozo (2006); Nelson (2016)	Taking note of students’ personal interests provide teachers with insight into their students’ lives and a sense of what texts might be most engaging for them. Encounters with these texts may foster increased interest in reading
Experiential and active learning	Alloway, Freebody, Gilbert, and Muspratt (2002); Bristol (2015); Reichert and Hawley (2009)	Research indicates that boys’ engagement and learning improve when they are allowed to explore their learning within the context of the real world. Integrating boys’ out of school practices into school activities can foster engagement through active learning experiences
Integrate popular culture	Guenther (2017); Martinez (2010); Taylor (2011)	The integration of popular music, movies, magazines, and current events into the learning environment. A key benefit is asking students to look at these cultural “texts” to critically assess how popular media constructs the concepts of masculinity and femininity and how those constructions shape what it means to be a boy or girl
Mentor texts	DeFauw (2016); Gericke and Salmon (2013)	Provide students with high-quality writing passages students to emulate in their own work. This provides teachers with an opportunity to expand the genres used as mentor texts to entice boys to write in new and unfamiliar genres
Peer sharing	Bausch (2007); DeFauw (2016)	Provide boys with opportunities to share their work with their peers, and honor the contributions of students who do not engage with texts in commonly expected ways so that their contributions make them feel included and supported

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Positive archetypes	Brozo (2006, 2010); Zambo (2007)	Incorporate a variety of positive male archetypes into classroom readings and classroom and school libraries, and aim for representational variety so students of different races, ethnicities, genders, and sexual orientations are captured positively in these texts
Technology integration	Bristol (2015); Lewis Ellison and Solomon (2018)	Teachers should encourage digital play, during which students engage in technologies including mobile apps and video games, and allow students to incorporate video games and other digital interests into their reading and writing
Transitivity	Reichert and Hawley (2009)	Build in the capacity of some element in a lesson, even if those elements are external to the central purpose of the lesson, to create deepened student engagement in ways that may lead to mastery and understanding. This may include kinesthetic activities that create or foster extended engagement among male students

Table 4.4

Components of a Balanced Literacy Approach to Literacy Instruction

Component	Definition
Phonemic Awareness	Instruction in phonemic awareness involves teaching children to focus on and manipulate phonemes in spoken syllables and words.
Phonics Instruction	Phonics instruction is a way of teaching reading that stresses the acquisition of letter-sound correspondences and their use in reading and spelling
Fluency	Fluent readers are able to read orally with speed, accuracy, and proper expression
Vocabulary	Vocabulary, both oral and print, is critical to the development of reading skills and refers to a student's ability to make sense of words encountered orally or in text
Comprehension	Reading comprehension is a complex cognitive process that requires a thoughtful, intentional interaction between reader and text

Note. Information from New York City Department of Education (2003)

GRP components were considered valid if they appeared in two or more research articles on the

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topic of instructional strategies related to boys' literacy with the exception of transitivity, which appeared in one. In addition to learning about GRP, participating teachers examined existing course curricula, texts, and local, state, and federal standards. They also discussed critical literacy skills for students in Grades 3-8.

During the first session, participants were expected to access course resources from Google Classroom and illustrate their command of the software by responding to a discussion prompt. The discussion prompt asked teachers to reflect upon their perceptions of boys as readers and asked participants to reflect upon the personal experiences that led them to feeling positively about reading and writing. One critical aspect of this session was providing time for participants to choose the elements of GRP and balanced literacy they wanted to integrate into the lesson to be studied, as well as to determine which grade level would serve as the investigative context for this research. Completion of these two tasks encompassed the selection of the research theme which ultimately provided a frame for the study (Ermeling & Graff-Ermeling, 2014).

Sessions 2-4 were expected to encompass the planning of the research lesson study. At this stage, it was my expectation that the investigative context and research focus would be selected, at which point participants would be able to shift their focus to the specific lesson to be modified, which was to be collaboratively designed by the study participants. I anticipated that participants would select balanced literacy and GRP components to integrate into the lesson. Additionally, this was also a time during which participants were expected to consider how this lesson fit into broader planning, including unit and grade-level curricular plans. During Sessions 2-4, participants were to determine the number of activities to be included in the lesson, the nature of those activities, and the text or texts to be used for student analysis. Participants were

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given a choice between developing a new lesson together or modifying an existing lesson to include balanced literacy and GRP components, and the lesson was to be constructed or rewritten based on the best practices in lesson design elucidated by lesson study practitioners (Chong & Kong, 2012; Lawrence & Chong, 2010; Lewis, Perry, & Hurd, 2004).

Session 4 was expected to be critical because during that time, participants were to finalize the lesson to be taught. My plan was to address the technical considerations of teaching and streaming while overseeing the completion of the lesson. I anticipated that this session would require me to prepare the teacher who would be teaching the lesson to be able to stream from her home, as there was uncertainty as to whether students would be present in school at the time. All the materials developed and adapted during the lesson study process were available digitally, so we were prepared to shift to fully remote teaching, fully in-person teaching, or a hybrid approach. One of the most pressing challenges of this intervention was ensuring that a digital shift would not disrupt the work participants had done up to this point.

The plan for Sessions 5 and 6 called for these sessions to encompass the teaching of the planned lesson and collective feedback shared post-observation. All collaborative activities were recorded using Google Meet's built-in recording software, and audio was often recorded separately to provide a backup in case of video failure. While much about the intervention's timing ended up changing, it was my intention that during Session 5, participants would join a Google Meet session to observe the lesson being taught virtually as planned during Session 4. One participant was scheduled to teach the lesson while the others observed it and collected data related to the lesson. Observing teachers were expected to take notes during the lesson detailing their feedback on the lesson including what affordances enhanced the lesson and what if any obstacles arose during instruction. Participant notes would then have informed the semi-

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structured interviews (Lewis et al., 2004). After the lesson was taught, participants were to convene for Session 6, which was to feature a collaborative discussion of the lesson that was taught. Observers were expected to discuss their notes on the lesson, offer feedback, and discuss the next set of modifications and adaptations that would improve the lesson. I planned to record this discussion and write field notes during a post-session viewing of the recording.

Sessions 7 and 8 were to be conducted synchronously and virtually and I anticipated that they would be organized around the improvement of the lesson based on our debriefing discussion, participant feedback, and participant interpretations of potential student engagement and outcomes. In addition to identifying lesson strengths, weaknesses in the lesson were to be identified and addressed, either by revising or replacing specific activities. By the conclusion of Session 8, I had planned that the revised lesson would be ready to be taught. Additional time for communication and collaboration were to be available to participants through use of Google Classroom, should they feel as though the lesson needs further review.

The final sessions, Sessions 9 and 10, were initially designed to be similar in structure to Sessions 5 and 6, as the lesson was to be retaught by the participant who taught it initially and another peer discussion was to follow the lesson's conclusion. Though teaching the lesson for a third time is not within the scope of this research project, participants were expected to continue discussing potential areas for improvement and specific strengths. Upon the conclusion of Session 10, a second round of semi-structured interviews were to be scheduled. These final interviews were intended to provide participants with an opportunity to share overall feedback on the lesson study instructional program as well as the delivery of the content and sessions. As noted above, several changes to the planned intervention took place. These changes, their circumstances, and rationales are presented in Chapter 5.

Data collection. A number of data sources were used to produce data for this mixed methods approach to studying a professional development program designed to modify teacher knowledge and beliefs about boys and literacy. This section will explain how semi-structured interview, exit ticket, observation protocol, field notes, quiz, and survey data were collected and analyzed. Table 4.2, which appeared earlier in this chapter, provides an overview of how each instrument and measure is tied to each session and provides insight into when each data type was collected.

Semi-structured interviews. Participants engaged in semi-structured interviews based on a series of questions designed to assess whether the intervention met its process and outcome goals. Interviews took place twice during the intervention: once at the midpoint of the intervention to allow for improvements to be made to the sessions and activities, then again at the conclusion of the intervention. While these interviews were initially supposed to be convened in person, this plan was modified based on extenuating circumstances related to COVID-19. Semi-structured interviews instead took place over Google Meet's teleconferencing software and were recorded through that software. Conversations were transcribed using Otter.ai's transcription software. Once the transcriptions were reviewed and corrected for accuracy, the data collected was coded. The intervention interview protocol is semi-structured, so the prompts provided the researcher with an opportunity to probe answers related to research questions to explore teachers' knowledge and beliefs more fully about boys and literacy, as well as teachers' knowledge about research-based instructional literacy strategies.

Field notes. Field notes taken by the researcher aimed to capture details about the physical and virtual spaces being used, the individuals involved, the activities taking place, objects within the environment, the individual acts of participants, the intended goals of the

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activities, and the reactions engendered during these activities (Wolfinger, 2016). The researcher typed his field notes during the two lesson observations and took field notes after each activity by reviewing session recordings and systematically reviewing Google Classroom activities once per week. Field notes were coded throughout the intervention and analyzed upon the intervention's completion.

Researcher's diary. The diary maintained by the researcher was updated throughout the sessions and related activities. While there was some overlap in the information recorded in field notes and the researcher diary, the diary focused on the evolution of the research project and the researcher's assumptions and beliefs, critically assessed research outcomes, clarified the researcher's roles and expectations, elaborated on participants' roles and expectations, and focused the researcher's attention on meticulous, thoughtful, ethical decision making (Cooksey & McDonald, 2019). Entries into the researcher diary took place upon each session's completion, during the intersessions when participants were asked to continue their discussions in Google Classroom, and on any occasion during which the researcher felt it was appropriate to record an entry. Diary entries were coded on a continuous basis throughout the research project and analyzed first with other qualitative data sources, then with all data sources used during the study as part of the mixing of the data strands.

Journal reflections. Participants were asked to write brief reflections upon the completion of each session, and those reflections were submitted through Google Classroom. Participants were not required to answer all prompts but were instead asked to use them as a starting point for their reflections. There was no set length of reflection, but participants were asked to write at least two sentences upon the conclusion of each session. All reflections were housed within individual Google Classroom modules.

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Exit tickets. Exit tickets were designed to determine both quality of delivery and dose received, and whether each individual session contributed to the program's overarching goal of modifying teacher knowledge and beliefs about boys and literacy. Exit tickets were distributed after every session except sessions 6 and 10, which focused on lesson evaluation. Exit tickets provided a simple quantitative assessment of each session's quality of delivery, dose received by participants, and influence on teacher knowledge and beliefs.

Observation protocol. The observation protocol was designed to assess participants' involvement in the activities of the intervention to ensure that the appropriate dose of treatment was received by all participants. Session attendance was assessed after each session, while modules viewed, exit tickets completed, and journal entries submitted were assessed after all sessions were completed. Resources were shared through Google Classroom for participant review and analysis. The Google Classroom instance was organized by session, and the relevant content and materials for each session are posted in the appropriate Classroom module. The observation protocol provided a means by which to track how thoroughly participants received the treatment.

KBRI quiz. The KBRI quiz was designed to assess teacher knowledge related to boys and literacy and was administered twice: once prior to the start of the first session, and then again upon the completion of the final session. Growth in teacher knowledge was assessed by comparing responses on the survey from the first and second administrations of the quiz. The purpose of this quantitative measure was to determine whether the intervention activities improved teacher knowledge related to boys and literacy.

BBRI survey. Like the KBRI quiz, the BBRI survey was administered pre- and post-intervention and was designed to provide a quantitative measure of changes in teachers' beliefs

about boys and literacy. A comparative analysis of pre- and post-intervention responses provided insight into whether session activities and the intervention as a whole modified teachers' beliefs. It is worth noting that while I will be using the BBRI to assess pre- and post-intervention changes to beliefs, it was not originally designed for this purpose. This is discussed further in Chapter 5's section on limitations.

Data analysis. The analytic process for the data collected through this mixed methods approach was guided by a convergent parallel approach to data analysis (Creswell & Plano Clark, 2017). This design requires the researcher to collect qualitative and quantitative data simultaneously, then mix the findings together during the analytic stage (Lochmiller & Lester, 2016). According to the steps provided by Creswell and Plano Clark (2017), mixed methods researchers should analyze qualitative and quantitative data separately, merge the results, identify dimensions to compare the data, and then present the analysis of the integrated data strands to produce a coherent overview of conclusions produced by all data sets. Yin's (2017) contention that mixed methods case study research must use qualitative and quantitative approaches to the same research questions also informed this study.

Session transcripts, field notes, researcher diary entries, and participant journal submissions were coded qualitatively. Coding qualitative data is a process that can be broken down into seven stages: (a) become familiar with the data, (b) transcribe the data, (c) memo your data, (d) code your data, (e) move from codes to categories, then from categories to themes, (f) create an audit trail, and (g) finish analysis when saturation is reached (Lochmiller & Lester, 2016). The design of the study called for the use of a multistage analytic coding process that was conducted in four phases and used a mixture of emergent and a priori codes. After an initial review of journal entries, emergent codes were recorded. Upon analysis of the other qualitative

data collected, the codes that emerged from journal coding were used as a priori codes, and new emergent codes were noted. The first cycle consisted of a careful reading of the data followed by in vivo coding (Saldana, 2015). Semi-structured interview responses were coded independently based on each participants' responses, then added to a central coding notebook. The next two stages occurred concurrently, as in vivo codes were color coded and grouped into categories during Stage 2, and color codes were grouped under broader themes that encompassed multiple codes during Stage 3 (Saldana, 2015). The emergent design of this case study provided the researcher with the opportunity to react to the data as it was collected, as the study is a reflection of themes and concepts that emerged throughout the research process (Lochmiller & Lester, 2016).

Quantitative data was used primarily to evaluate changes in teacher knowledge and beliefs over the course of the intervention as well as to ensure that the quality of delivery and dose delivered to participants were sufficient to initiate change processes within the participating educators. The process of analyzing quantitative data requires several steps: (a) prepare the data by assigning numerical values to responses and establishing a quantitative codebook, (b) explore the data by visually inspecting trends and conducting descriptive analyses for each major variable, (c) analyze the data using the appropriate software and tests, (d) represent the analysis by summarizing statistical results, (e) interpret the results by examining them in light of the research questions, and (f) validate the results by establishing the reliability and validity of the data (Creswell & Plano Clark, 2017). Descriptive statistics like median and range were calculated using the latest version of the SPSS software, and trends in the data were analyzed during this process. Differential statistics were also examined to determine the frequency of specific responses and to seek out patterns in the data. A comparative analysis of participant

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responses on the pre- and post-intervention KBRI quiz and BBRI survey was conducted to determine how teacher knowledge of and beliefs about boys and literacy instruction changed if at all over the course of the study. Given the small sample size, it was unlikely that more sophisticated quantitative measures would have yielded meaningful data. In quantitative data analysis, sample sizes smaller than the ideal make it more likely that the researcher will assume a false premise to be true (Faber & Fonseca, 2014). Because of this, quantitative data analysis was limited to descriptive, differential, and comparative statistics.

The final stage of data analysis involved mixing the two data strands to determine if any overarching, connected themes existed between the data sources. This required analyzing the coded interview, researcher diary, field note, and reflection journal data and comparing it to participant responses to exit tickets, quizzes, and surveys to draw conclusions about both process and outcome goals. Each research question utilized multiple data sources and there was significant overlap in the questions being asked qualitatively and quantitatively in this study. For example, during semi-structured interviews, participants were asked, “What changes if any do you perceive in your knowledge of boys and literacy after professional development on balanced literacy and gender-relevant pedagogy?” while the exit tickets asked participants to respond to a prompt stating, “Today’s session modified my knowledge of teaching literacy to boys.”

Although these questions are different, they share a similar purpose: to determine if the provided sessions modified teachers’ perceptions of their knowledge about boys and literacy.

The data analysis process required all data collected to be added to a central codebook, then analyzed for similarities and differences. A central Google Sheets file was created, then a tab was created for each data source. For each tab, every code that emerged from the data produced by that instrument was placed under a theme. The total number of respondents who

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produced data that could be grouped under a specific code was noted under the theme. Then, below the code itself, every unit of meaning a particular code applied to was input into a cell (see Figure 4.1). Another tab was then created to allow for the grouping of qualitative and quantitative data codes and findings under overarching themes. Finally, once all qualitative and quantitative data was analyzed, they were grouped under the research question to which they applied.

Figure 4.1

Representative Sample of the Researcher's Codebook

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
2	Theme	General changes to knowledge and/or beliefs	No changes to knowledge and/or beliefs	Student-centered instructional practice					Student-centered instructional design						
3	# of respondents with a unit of meaning	3	1	2	1	1	1	1	3	1	2	1	2	3	1
4	Code	general changes	no changes	teacher flexibility	seating flexibility	modeling	using humor	Perceptions of literature	diversity of activities	choice of activities	diversity of texts	assessment differentiation	incorporating different interests	kinesthetic activity	experiential active learning
5	Units of meaning	I believe that boys and literacy need change	I can't say I really have any changes in my knowledge or beliefs	I changes I have thought about regarding boys and literacy pertain to flexibility	boys may require more flexibility in seating	I think our discussion about modeling a fable before asking students choose their own will boys feel more empowered on how to handle the task after modeling	boys use humor to convey understanding	I have come to view graphic novels and less formal reading material as appropriate	when looking into when boys can choose a literary assignment.	[It will be] giving the options of different activities they can complete as opposed to the standard assignments	Including different types of material	boys may require more differentiation in assessments	Boys don't have the same interests [as girls do]	Boys may require more movement	boys benefit from hands-on activities
6		Boys need more options in terms of literacy	still too early in the sessions to perceive any changes in my knowledge or beliefs	Be more flexible in my teaching of literacy to boys				my view of what is appropriate reading material has changed	we were sure to include choices during the lesson so boys could support their interest		incorporate different materials that boys may have interest in	differentiation in evaluations	[boys'] specific interests need to be considered	higher perception that other physical activities need to be incorporated into lessons to engage boys	boys benefit from hands-on activities (no duplicate)
7		gain a better understanding of why boys struggle with literacy more than the girls	many of the ideas we discussed were ones I have used	adjustments in how and what we teach can be beneficial				[Boys may require more] types of activities		my view of what is appropriate reading material has changed		[Choice in] assessments	all the boys had similar fable choices and clearly have similar interests	[many boys] benefit from hands-on activities that may require more movement and less dialog	boys benefit from hands-on activities (no duplicate)

Validity, Reliability, Confirmability, and Trustworthiness

Qualitative and quantitative data analysis requires the researcher to consider issues of validity, reliability, confirmability, and trustworthiness in mixed methods research. A number of qualitative strategies to ensure confirmability and trustworthiness, including member checking and researcher reflexivity, can help validate the researcher's analysis (Creswell & Miller, 2000). Member checking occurred by providing participants with insight into the researcher's

conclusions and sharing interim analyses with participants. In conjunction with a systematic approach to data collection and analysis, describing the study's methods and procedures in detail and using multiple data sources to draw conclusions helped ensure the confirmability and trustworthiness of a study (Miles et al., 2014). Clear research questions and clearly designed constructs are two ways to enhance a study's reliability, while what Guba (1981) described as thick, rich descriptions of the study context, participants, and activities derived from the researcher's observation notes and session recordings help to guard against threats to confirmability and transferability (Miles et al., 2014). Similarly, quantitative data analysis was examined for validity and reliability using a variety of techniques. Validity was tested by determining how accurate the inferences drawn from specific scores were by comparing outcomes from multiple data sources (Lochmiller & Lester, 2016).

There are several ways to minimize threats to validity and reliability in a mixed methods study. Given that this was a convergent mixed methods study, utilizing several measures to ask the same questions was one way to help ensure reliability (Golafshani, 2003). One potential threat to validity is unequal quantitative and qualitative sample sizes, which can be minimized by ensuring samples are sized the same (Creswell & Plano Clark, 2017). Given that this study focused on four participants, all of whom completed the full course of treatment, quantitative and qualitative data sample sizes were identical. Another potential threat to validity is the failure to address disconfirming results, which can be at least partially mitigated by engaging in strategies to understand these results and how they came to be, possibly through a revised analysis of the dataset (Creswell & Plano Clark, 2017). Recording and viewing each session multiple times was also valuable in that it allowed for data to be collected more than once from an important data source (Hager, 2012). The peer review process for several instruments, including the KBRI,

BBRI, and semi-structured interviews, was one way to ensure content validity, which can be tested through the use of a panel of experts (Rubio, Berg-Weger, Tebb, Lee, & Rauch, 2003).

Reporting results as individual rather than integrated strands can affect the validity of a mixed methods case study. This can be addressed by merging the data sets during the final stage of data analysis (Creswell & Plano Clark, 2017). Finally, the mixed methods case study design inherently uses triangulation as a validity strategy, since a multitude of data sources are collected and analyzed across paradigms and integrated into the researcher's conclusions (Wilson, 2014). A threat to the validity of this intervention that was specific to this study lies in the fact that two of the quantitative instruments, the KBRI and BBRI, were administered to two of the potential participants in this study as part of the needs assessment.

Limitations of the Study

There are several limitations to this study. Firstly, the BBRI survey and KBRI quiz were used during the needs assessment, and two participants from the needs assessment were involved in this study. Their familiarity with the instruments may affect the validity and reliability of the results. Additionally, the small sample size of the study ($N = 4$) is a potential limitation, as it is unlikely that causal inferences or generalizable conclusions can be drawn from this work. It is more likely that this study improves causal descriptions (Shadish et al., 2002). There are also potential limitations rooted in the study's methodology. As mentioned earlier in this chapter, case studies can also be particularly challenging for novice researchers, which could pose a problem given the amount of time I have been conducting research on this topic (Creswell & Plano Clark, 2017).

Researcher Subjectivity

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Researcher subjectivity is an important consideration, as the simple act of generating these research questions may reveal pre-existing assumptions on the part of the researcher that need to be considered and controlled for during the experiment and data analysis processes (Hancock & Algozzine, 2017). Researchers should exhibit reflexivity, which requires the researcher to be conscious of the relationship between him or herself and the participants in a study (Bourke, 2014) and calls upon the researcher to understand how the process of conducting research shapes the outcomes of that research (Corlett & Mavin, 2018). It is the researcher's responsibility to work to develop knowledge of the participants in a study (Milner, 2007) and to consider how issues related to personal identity can influence a study (Srivastava, 2006). My own biases and beliefs may influence the study, and as a result I need to consider my positionality.

I have self-identified as an indigenous outsider (Banks, 2015) because I spent 13 years working in Catholic education, including roles at the school and district level, but have also spent the last eight years in the private sector and public education. I attended Catholic schools for twelve years and taught in them for twelve years, but my beliefs and values are now equally informed by my post-Catholic education experiences. The selection of both the setting and the study's participants were influenced by my experiences, as I believe Catholic schools do not provide sufficient professional development to their teachers, and based on my research and personal experiences, I have concluded that some Catholic school teachers reject research-based practice in favor of practice developed through experience and exposure. These are pre-existing beliefs that must be considered in light of the study to be conducted.

As someone with roots in Catholic education, I am invested in working to increase enrollment, improve student outcomes, and provide teachers with the professional learning

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supports they require. Because I also work as an Information Technology Director for a public school district, I have established beliefs related to the importance of technology in instruction and other beliefs that may influence the elements of GRP on which this study focused. Further, my experiences as a Catholic school teacher color my beliefs regarding professional development in the diocese and the value district leaders place on it. My expectations for professional development and the use of technology as well as my history as both a teacher and district administrator should be acknowledged.

Chapter 5

Findings and Discussion

The purpose of this study was to examine the changes if any to Grades 3-8 ELA teachers' beliefs and knowledge related to boys and literacy after a lesson study focused on the integration of gender-relevant pedagogy and balanced literacy into a lesson. This intervention took place over 14 weeks from November 2020 to February 2021, during which time the COVID-19 pandemic wreaked havoc on traditional schooling. Process and outcome research questions will guide this discussion of findings, procedures, and limitations. The chapter begins with an overview of the intervention's implementation, followed by process and outcome evaluations. Results will be organized by research question and specific emphasis will be placed on participants' perceived changes to their knowledge and beliefs related to boys and literacy as well as my perceptions of changes to teachers' knowledge and beliefs related to boys and literacy. The chapter will conclude with a discussion of the study in light of the literature as well as its limitations and implications for future research. The research questions below centered the analyses within this study:

RQ1: How did participants describe the quality of program delivery offered during the intervention?

RQ2: To what extent were all the intended components of the intervention provided to program participants?

RQ3: What changes if any did Grades 3-8 English language arts teachers perceive in their knowledge and beliefs related to boys and literacy after professional development on balanced literacy and gender-relevant pedagogy?

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RQ4: What changes did the researcher perceive in Grades 3-8 English language arts teachers' knowledge and beliefs related to boys and literacy after participation in professional development focused on balanced literacy and gender-relevant pedagogy?

The demographic breakdown of study participants is provided in Table 5.1. Participants were all full-time teachers at St. Stephen's Elementary School, an urban Catholic school located in a large Northeastern city.

Table 5.1

Participant Demographic Information

Gender	Race	Participant	Grades Taught	Years of Teaching Experience	Years Working at SSCS
F	White	A	Secondary	>5	>5
F	White	B	Primary/Secondary	>5	<5
F	White	C	Primary	>5	<5
F	White	D	Primary	<5	<5

Session Overview

In this section, the details of each of the intervention's 11 sessions and 10 intersessions are described. Session duration, content focuses, participant engagement and responses, and modifications to the schedule provided in Chapter 4 are among the areas of focus.

Session 1 and Intersession 1. The first session of this intervention took place in early November 2020 and lasted ninety minutes. Key events included the technical difficulties that arose at the start of the session, the review of the components of gender-relevant pedagogy (GRP) and balanced literacy (BL), and our first discussion activity. During the overview of GRP strategies, participants indicated that they were already using several of these strategies in their

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instructional practice, including activity choice, kinesthetic movement, and the integration of different modalities (like showing a TV show of a short story they read in class) into instruction. The discussion about GRP strategies was the primary opportunity for participants to share their thoughts during this lesson. The rest of the session featured participants watching a video on lesson study, then completing Google Classroom activities including a brief written response to a prompt about the value of GRP and BL in the classroom. The session concluded with a brief discussion of their responses to the Google Classroom prompt followed by an explanation of the exit tickets. Intersession 1 activities included viewing a YouTube video on lesson study, reading a supplemental lesson study resource, and completing a journal entry.

Session 2 and Intersession 2. Session 2 took place on the same day as Session 1 and began roughly one hour after Session 1's conclusion in the same location. The initial activity for Session 2 involved completing the activity originally scheduled for Intersession 1, which was scheduled but could not be completed due to the lunch break. Shifting work from the first intersession to Session 2 was the start of a ripple effect that ultimately led to an 11th session being added to the original plan of 10 sessions. Unlike Session 1, there were no written Classroom activities participants needed to complete. Participants did have brief periods of discussion regarding the GRP and BL components they wanted to address in our lesson. Sessions 1 and 2 were foundational sessions designed to provide participants with an overview of GRP, BL, lesson study, and State Next Generation Learning Standards. Participants were asked to rank GRP and BL components based on how interested they were in integrating them into a lesson, select a lesson they would like to modify or design during the lesson study, and complete journal entries during Intersession 2.

Session 3 and Intersession 3. Our third session was the first in which participants were working from home rather than at the school and the first in which a participant was absent. Once technical concerns were allayed, we reviewed participant lesson plan submissions posted during Intersession 2, which led to a content-focused discussion of what participants should be focused on accomplishing in the lesson to be taught. One piece of feedback provided in the journal responses indicated a greater need for more discussion, so I purposefully extended the discussion time during this session. One result of more discussion time seemed to be greater engagement and more interactive, participative discussion. The majority of the session after the lesson discussion centered on the development of the research theme. The research theme was largely determined by the focus of this lesson study, so participants knew that integrating GRP and BL strategies would be central to their work. Comprehension, vocabulary, engagement, and developing a love of reading were all mentioned as important concepts to integrate into the lesson being developed. One concerning trend emerged during Session 3 when it became clear that participants did not want to complete written in-session or intersession activities and preferred to discuss these prompts. Only one participant completed the Session 3 written discussion activity. Based on this, I scaled back written activities in future sessions, and discussion and collaboration were centered. During Intersession 3, participants were asked to read one article on the lesson study cycle and to complete a journal entry.

Session 4 and Intersession 4. The first December session was virtually attended by three participants. Google Meet continued to serve as our digital meeting space. Technical challenges presented themselves during most sessions in some form or another. The first activity was a review of two different research lesson templates. This was not originally planned to be the opening activity, but the activities per session had to be reduced to provide more time for

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conversation, and I continued to remove in-session written activities during my planning process. Participants quickly reviewed the template and removed components that we had either already completed or were not relevant to our work. The bulk of Session 4 shifted to being a free-flowing discussion during which I as the facilitator tried to be silent, to foster the valuable conversations happening among participants. While I had intended to break individuals into pairs, the absence of one participant made that impossible. Participants continued to shape the sessions, as they voiced their feelings that they would rather work as a group versus working as individuals. After 10 minutes of discussion on the GRP and BL components to be used, we shifted to a brief recap, and participants completed their exit tickets either while signing off or prior to signing off. Participants were asked to watch a video on successful lesson study and to complete a journal entry during Intersession 4.

Session 5 and Intersession 5. The first 10 minutes of our fifth session were dedicated to housekeeping items like scheduling interviews and considering alternate timelines given how much work we had not yet completed. Participants continued to review GRP components, and the facilitator led a discussion of session objectives and the research template. The review of GRP elements paid dividends, as we ultimately integrated six GRP components into our lesson: transitivity, kinesthetic activity, peer review, mentor texts, choice of activity, and choice of texts were used as part of our lesson. Importantly, the participants were able to identify activities that aligned with the components of GRP. While participants were productive throughout the session, several critical components of the lesson were not completed as planned: expected student responses, the slides for the lesson themselves, and even the fable library that would be needed to provide text choice to students. Intersession 5 was one of our busiest, as participants were asked to review the protocol for observation and discussion that would be used to guide our post-

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observation session (“Public research lesson protocol: Lesson study 2018-19,” n.d.), complete a journal entry, and participate in semi-structured interviews.

Session 6 and Intersession 6. Participants began Session 6 with a brief discussion of how the team should proceed regarding our final four sessions and timing. The first few minutes of the session were spent reviewing the work completed during the last session. Completing the research lesson template was paramount. Participants were tasked with determining the primary questions this lesson would present to students, which helped launch the lesson design process. Revisions were made to previously designed lesson components and two activities were removed due to time constraints, as our lesson was intended to be 50-60 minutes. The lesson design process consumed most of the session, and the session concluded with a participant-led discussion of alternative activities in the case of a modality shift due to COVID-19. By the conclusion of this session, the lesson to be taught was complete and ready to be shared with our knowledgeable other. Given participants’ openness about not enjoying intersession work, Intersession 6 was the last to feature an activity other than journal entries. Participants were asked to review a lesson study lesson log to decide if it was a tool they wanted to use during the observation.

Session 7 and Intersession 7. Session 7 was the only session to run longer than expected, as a planned one-hour session required nearly ninety minutes. As I discussed in the lesson study overview, a critical step in the lesson study process is the evaluation of the lesson by a knowledgeable other well versed in the principles of lesson study, and discussing that evaluation was the focus of Session 7. A number of changes were made based on Tom McDougal of the Lesson Study Alliance’s feedback and participants’ reflections on their work: participants shifted the opener from the teacher providing the elements of a fable to students

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generating these elements themselves, the primary aim and description of the lesson were rewritten, thorough ideal and less ideal potential responses for all of the questions being posed were developed and revised when necessary, lesson goals were made more concrete and specific, a rationale was provided for students explaining why this content might be important to them, more challenging fables were selected for students to choose from, and an in-class exercise was reconstructed. The session concluded nearly 30 minutes later than anticipated, and participants were asked only to complete a journal entry during the intersession.

Session 8 and Intersession 8. Session 8 was our first session since the intervention's first week to be a hybrid of remote and in-person, which was necessary given that the lesson was being taught for the first time during this session, and SSCS had returned to conducting in-person classes. Consequently, the teaching of the lesson was face-to-face with remote students present via Google Meet but unable to interact with the teacher. Data collection, including observation of the lesson by other participants, was remote. The facilitator created a Google Meet to accommodate virtual streaming of the live lesson from the teacher of the lesson's classroom. Prior to the lesson, I met with the principal to provide him with the following: a 16" MacBook Pro to serve as the broadcasting station connected to an iPevo V4K camera with built-in microphone, a 13" Windows XPS to serve as a backup streaming device, extension cables, and an iPhone for recording the audio of the lesson. There were immediate technical issues – the MacBook Pro was not providing a clear stream, so the Windows XPS 13 laptop was pressed into service. The principal provided an iPad that was set up in the rear of the room to provide a whole room view of the classroom, while the XPS was focused specifically on the instructor and the projection screen. Because two participants were struggling to hear the classroom interactions, I, as the facilitator, also working remotely, transcribed student responses in the Google Meet's chat

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client. The technical issues and inability to see and hear everything happening in the classroom were two significant challenges. The teaching of the lesson lasted exactly 50 minutes, which was what participants had intended. Each activity including those explicitly rooted in gender-relevant pedagogy progressed as intended. Participants noted that students were engaged and participated on a high level. The instructor took before and after photographs of the room and shared those with the participants, which gave us a sense of the student work that was completed. Because Session 8 led directly into Session 9, participants were asked to complete two separate journal entries upon completion of Session 9, one focused on the lesson, the other on the post-lesson discussion.

Session 9 and Intersession 9. The post-observation discussion of the lesson was the focus of Session 9, and while the participants were in the same building, they all joined the Google Meet from separate spaces. The public research lesson protocol facilitator's script guided our discussion and consisted of four primary sections: relationship and its change, cognition of children, pedagogical skills, and structure of lesson. The most challenging section was the first, because limitations in our camera positioning and stream quality made it difficult to discern physical changes on students' faces, slumped shoulders or other non-verbal indicators of attitude and disposition, and whether students could see or hear. Participant C, the instructor, confirmed for us that in-person and remote students could see and hear, and she was also able to fill in some gaps regarding how they physically manifested their mental and emotional states during the lesson. As we began, participants agreed that they had taken limited notes because it would have made it difficult to pay attention to the lesson. Additionally, they stressed the challenges they faced in seeing and hearing students. Because student responses are an essential component of lesson study, this is a limitation that must be noted. Woven into the discussion were revisions

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participants felt the lesson needed. The length of the lesson's opener was reduced, a digital equivalent of the Post-it note activity was developed, more time for student responses was built into two activities, and most critically, the lesson was shifted to 4th grade from 5th grade.

Participants were asked only to complete Session 8 and 9 journal entries during Intersession 9.

Session 10 and Intersession 10. Session 10, originally scheduled to be our final session, was instead designated for the re-teaching of the revised lesson originally taught in Session 8. The lesson once again took 50 minutes to complete. The technical setup was identical to the setup for Session 8 except for one significant improvement: the principal had purchased microphone packs for teachers at SSCS, so the teacher's voice was loud and clear for all but Participant A, who indicated that while she could hear most of what the teacher said, she could not hear student comments. During the lesson, participants noted that students were engaged in the activities of the lesson and felt that the lesson's mixed modalities kept both boys and girls engaged and shifting between speaking, moving, writing/drawing, and collaborating. The lesson moved through the stages delineated by the research lesson template. The elements of GRP that were built into the lesson engaged students, according to my field notes on participant interactions during the lesson. The lesson concluded with exit tickets that allowed students to sketch or write a response to a brief prompt.

Session 11 and Intersession 11. The final session was similar in structure to Session 9. The Lesson Study Alliance facilitator's script calls for a small group discussion as part of the opening activity, but participants preferred to remain in one group given the small number of participants. The teacher of the lesson was asked to reflect for five minutes and did so, touching upon her increased comfort level, student reactions to the lesson being streamed, and how the changes we made to the lesson affected it. The next stage, sharing out student work and

responses, covered the charts students filled with Post-it notes and was a pandemic-modified version of a virtual gallery walk. We then shifted to moderated group discussion based on our notetaking document. We once again discussed the challenge of seeing students' reactions to things, given that the two cameras in use were both focused on the instructor. We were able to discuss student responses and inferred what we could about their feelings from what we could hear. The instructor provided detail participants were missing from the livestream of the lesson, fleshing out our perceptions and occasionally sharing information we didn't receive from our vantage point. The session concluded with me thanking participants for their hard work and asking them to complete their exit tickets and surveys. Because this was our final session, there was no intersession work assigned, though participants were asked via email to complete journal entries for Session 11.

Quality of Program Delivery

The first process evaluation research question is focused on the quality of program delivery during the intervention. Data from qualitative data sources including mid- and post-intervention interviews, participant journal entries, and researcher field notes as well as exit tickets, a quantitative instrument, were analyzed in order to determine participant perceptions of the quality of program delivery during this intervention. Exit ticket data and general feedback from journal entries will be presented first, followed by a discussion of themes that emerged across multiple data sources, concluding with a summary of the section.

General Feedback Regarding Quality of Delivery

Exit tickets, interview responses to the question "How would you describe the quality of program delivery offered during the intervention?" and journal responses to the prompt "What about our most recent session could be improved?" elicited some general feedback regarding the

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quality of program delivery. The mean response to the exit ticket prompt related to quality of delivery was 4.95 with 5 being the maximum value, indicating that participants overwhelmingly believed that the quality of each session's delivery was high. There was little deviation in responses, as only twice did a participant select "agree" rather than "strongly agree" in response to the prompt. At no point did a participant respond neutrally to or disagree with the prompt.

Participants also offered praise of the quality of program delivery during interviews and in their journal entries. During interviews conducted after Session 5, Participant C remarked that "quality of delivery is excellent," Participant B noted several times that the quality of delivery "has been very good," and Participant D said the intervention had "gone very well." Participants C and D reaffirmed their opinion on quality of delivery during post-intervention interviews, with the former indicating that "program delivery was excellent" and the latter summing the experience up succinctly: "It was fun." Participant C continued to be the most effusive participant as it pertains to quality of delivery, as she concluded, "I think it was amazing." While participants did offer feedback on several ways to improve each session in response to the journal prompt, there were 13 participant responses across sessions that indicated that no changes were needed. Challenges to quality of delivery will be discussed later in this section, after a review of themes that emerged from an analysis of qualitative data related to this research question.

Peer Support and Collaboration

One of the most frequently invoked themes across data sources regarding quality of delivery was the value of peer support and collaboration. Participants spoke highly of the value of interacting with their peers while engaging in meaningful pedagogical work. Across journal

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entries, interviews, and field notes, participants expressed enthusiasm for collaboration, discussions with colleagues, and the process of lesson planning in a lesson study with their peers.

All four participants shared their appreciation for the opportunity to collaborate and interact with their co-workers during the intervention. Participant C “enjoyed the interaction and topic,” while Participant B indicated that “bouncing off ideas to other educators” was one of the best parts of the sessions. Feelings on collaboration stayed consistent throughout the intervention. During Session 1, field notes captured Participants B and D responding to a Google Classroom activity by writing, “Collaboration among teachers is vital.” Seven sessions later, Participant B summed up her feelings in her Session 8 journal entry: “The dynamic of peer interaction is always productive.” At times, participants connected peer discussion to the instructional design of the intervention. Participant D said, “There’s discussion about different theories, so I think it's going good.” Given that lesson study is intended to be teacher-led and collaborative (Lewis, 2002), positive participant feedback on peer support and collaboration are indicators that the program delivery was proceeding as designed.

One important aspect of collaboration was the design, teaching, and observation of the lesson. During her post-intervention interview, Participant D said, “It was fun observing another class too and seeing how she teaches and [uses] different styles.” Similarly, in her eighth journal entry, M made several remarks about working to design a lesson with her colleagues, concluding with her belief that “much of our lesson worked well” despite noting some areas for improvement. Participants also valued the democratic nature of lesson study, exemplified by Participant D’s remark that, “We had the lesson planning session last week and I feel like everyone got a chance to give input.” Field notes for Session 11 captured Participant A’s enthusiasm for the collaboration that took place, as during the session she said, “Bouncing things

off people and hearing each other's experiences was the most valuable part." The theme of peer support and collaboration was present in every qualitative data source, and each participant made several references to the value of working together with their peers to design a lesson.

Instructional Design of the Intervention

Participants made frequent reference across data sources to the intervention's instructional design. Instructional design is the combination of activities and strategies used to convey information to learners (Nichols et al., 2007). Session organization was the most prevalent code in the data, emerging 15 times across interviews and journal entries, with virtually all the feedback being positive. Conversely, there was both praise and criticism of one aspect of the intervention's design: the pace of specific sessions and the intervention itself. Finally, participants spoke highly of the opportunities for new learning presented to them during the intervention.

The quality of session organization was referenced numerous times by all four participants. At various times, participants referred to the sessions as "well organized," and several praised the use of Google Classroom for organizing the intervention sessions. Participant D explained during her first interview that she felt like "everything is organized well...on the Google Classroom," while Participant C concurred, noting that "we could always go back and look at the...information you posted and examine that further." During her post-interview, Participant B articulated why she praised the intervention's organization: "I feel like all the pieces of the intervention was very clear at the beginning, what the objective was, straight through to starting to come up with the lesson." Participant A wrote that she was impressed with how well the materials and discussions were organized in a journal entry and reiterated those thoughts during her midpoint interview. The organization of sessions and of the intervention is

the aspect of quality of delivery that received the most praise from participants, and the use of technology like Google Classroom provided a consistent, comprehensible experience for the participating educators.

The design of each session and the intervention as a whole required careful consideration of the pace and breadth of material covered. Participant feedback on pacing was generally positive according to participant journal entries and responses to interview questions, though the speed with which some material was worked through posed a problem at times. Participant C wrote that she “found the pace and amount of documents confusing” in her journal entry after Session 2 and expressed a similar sentiment during our first interview, when she explained that, “It’s a short period of time for a lot of information to be absorbed.” Participant B expressed similar sentiments in her entry for Session 6. Conversely, some participants also felt the pace “wasn’t overburdensome because everything was spread out,” and Participant D remarked that I “don’t drag it out” and that “the flow went well” in a journal entry. Participant A provided thoughtful feedback on the pacing of the intervention during our first interview, explaining that, “I would integrate a little bit more [about FRP/BL components] as you went along with that, rather than lump it all in the beginning where it was sort of overwhelming,” and further positing that “maybe we didn’t spend enough time really delving into that part [GRP/BL components].” Participant A went on to explain that she routinely did not feel as though she was learning much new information each week, which informed her journal entry and exit ticket responses related to the changing of knowledge and beliefs related to boys and literacy. While participants were generally positive in their appraisal of the quality of program delivery, feedback related to pacing and design of the sessions offered insight into potential changes should this intervention be

repeated. Participants advocated at times for a slower pace, and one recommended more discussion of GRP and BL components interwoven throughout the sessions.

Challenges Related to Quality of Delivery

Two primary themes related to challenges to quality of delivery emerged during data analysis: issues related to COVID-19 and time limitations. Each of the participants expressed frustration at having to work remotely, and for one participant this antipathy was driven by technological challenges. These challenges were particularly acute during the teaching of the lesson, which took place during Session 8 and Session 10. Participant A wrote in her journal that “technology was the biggest issue” during the first remote lesson observation and expressed that she “could barely hear anything” during the second lesson observation in a comment captured in my field notes. In my researcher’s diary, I captured several notes related to technological challenges, specifically the difficulties some participants faced connecting to Google Meet livestreams and using Google Classroom. Participants who did not face the same level of technological challenges nevertheless had concerns about working remotely, and all four participants expressed this in various ways. Participant B said that “having these meetings in person . . . would be more productive,” Participant D mused that she “wish[ed] that we could be in person, Participant A felt the primary drawback to our work was that “we had to be remote,” while Participant C felt as though we “would have had a little bit more time had we been in person.” This connects to the other primary challenge the participants and I faced, which was time limitations.

Time was frequently a factor in this intervention, as the shift to working remotely generally left less time for collaborative work given the time it took participants to log into Google Meet and Google Classroom, along with other challenges they faced working from

home. Two participants referenced time being an issue in their journal entries. Participant A wrote that, “Since the sharing is so good, I hate that we’re so limited on time to discuss and explore more,” while Participant B felt that time management was an aspect of the intervention where improvement was needed. Participant D expressed a similar sentiment in a more accepting manner, remarking during her first interview that while “the time frame is what it is,” she felt that “we have a lot packed into an hour.” Participant C expressed similar concerns, explaining during her post-interview that the “only fault [of the intervention] would be the time [available for the sessions].”

Summary of Quality of Delivery

Quality of program delivery is a critical component of an intervention’s fidelity (Dusenbury, Brannigan, Hansen, Walsh, & Falco, 2005) and is intended to assess the “manner in which the implementer delivers the program using the techniques, processes, or methods prescribed” (O’Donnell, 2008). Quality of delivery can be measured in a number of ways, including through interviews and observations (Dusenbury et al., 2005). This study assessed quality of implementation through an analysis of data collected through interviews, journal entries, field notes, and exit tickets. Participant feedback regarding quality of program delivery was largely positive, though several respondents indicated that adjustments made to the program in response to COVID-19 and the pace of the intervention presented obstacles to completing the program with fidelity.

The instruments used to assess quality of program delivery produced data that was largely consistent. Participants’ exit ticket responses were overwhelmingly positive, with virtually every participant giving the highest possible rating to every session of the intervention, and participants were similarly enthusiastic during interviews and in their journal entries. When

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participants provided more granular responses, they praised the opportunities for peer support and collaboration afforded to them during this intervention, as well as the instructional design of the sessions. Their thoughts on quality of delivery were most extensively discussed during interviews, though journal entries, and in exit tickets. Field notes also frequently captured participant perceptions related to the first research question.

In summary, technological issues, working remotely, and time limitations were the most frequently cited challenges to quality of delivery, with participants expressing unhappiness at having to work from home and the nature of observing the lessons virtually rather than in person. While only one participant discussed it in detail, the frontloading of GRP and BL concepts during the first three sessions may have been problematic, as it led to limited new learning related to these important elements over the course of the intervention after Session 3. Challenges related to quality of program delivery are reflective of the chronosystem within which this intervention was situated, as roughly three months after its completion, restrictions related to COVID-19 have been largely lifted in the city where the study took place. While SSCS was closed twice over the course of this intervention, in-person research would have been impossible regardless of that, as the researcher's university put a remote research requirement into place that restricted researchers from conducting face to face research with their participants. Though the university's restrictions remain in place, it is likely that challenges to delivering the intervention would be different had the project begun just a few months after it did.

Extent to Which Intended Components Were Provided

The second process evaluation research question asks to what extent all the intended components of the intervention were provided to program participants. Dusenbury, Brannigan, Falco & Hansen (2003) referred to this as “dose delivered.” To determine this, the

implementation process will be described with a focus on changes made to our schedule and shifts in content or delivery followed by an analysis of the data collected during this mixed methods study. This section begins with an overview of how lesson study was used in this intervention, then moves into a session-by-session overview before providing an analysis of what worked and was unchanged during the intervention compared to what did not work and required modification. Finally, exit ticket and interview data is analyzed and conclusions are presented.

Lesson Study Overview

While the concept of lesson study was discussed at length in Chapters 3 and 4, the specific design of this intervention's lesson study is important to understanding the sessions and their activities and determining whether the components prescribed in the intervention plan were delivered as intended. Lewis's (2002) four-stage conception of the lesson design cycle (which includes goal setting and planning, the teaching of the research lesson, discussion of the lesson taught, and consolidation of learning that often includes the lesson being retaught after revisions based on the initial teaching) guided the design of this intervention. The development of this lesson study was rooted in a number of critical texts by authors noted for their experience with lesson study.

The framework for this intervention was developed after a thorough review of existing literature on lesson study. The template for the research lesson protocol facilitator's script was provided by the Lesson Study Alliance through their website ("Lesson study resources," 2015), while the template for choosing a research theme and a selection of sample lessons came from Lewis (2002). Lewis and Hurd's (2011) lesson description outline was used in conjunction with the Lesson Study Alliance's lesson research proposal template to develop a robust plan for the design and teaching of the lesson. Lewis's lesson study schedule, which called for between 10

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and 17 sessions in total, was also a guiding force, as the sessions were designed to adhere to the schedule she proposed. The most important element of the lesson study components was the lesson study template, which was used to build the lesson to be taught. Participants chose to use the template prepared by the Lesson Study Alliance and shared with me by Tom McDougal, the organization's Executive Director. McDougal's role in our lesson study was an important one.

The knowledgeable other is critical in lesson study, and McDougal served in this capacity for this intervention. The knowledgeable other is familiar with the principles of lesson study and makes suggestions and recommendations for improving the collaboratively designed lesson (Takahashi, 2014). McDougal agreed to serve in this role in exchange for a modest stipend. He evaluated our lesson and provided thorough, detailed feedback. Most of his feedback was shared with participants, and many of his recommendations were incorporated into the lesson to be taught. Once the lesson was taught, the Lesson Study Alliance's public research lesson protocol facilitator's script guided our discussions.

Lesson design and discussions of the lesson followed established lesson study protocols. During the design of the lesson, participants were asked to identify a research theme, elucidate goals of the lesson and unit, relate the unit to existing standards, provide a background and rationale for the lesson, engage in the study of instructional materials (commonly referred to as *kyozaikenkyu* in lesson study), and create a unit and lesson plan (Lewis, 2002). During the planning phase, participants were expected to develop the components of the lesson including developing an introduction, posing the task, anticipating student responses, comparing and discussing student feedback and responses, and summing up the lesson ("Public research lesson protocol: Lesson study 2018-19," n.d.). Post-lesson discussions were also tightly structured, as they adhered to the Lesson Study Alliance facilitator's script and were divided into four sections:

relationship and its change (how students and their teacher interacted, student facial expressions and reactions, and the level of trust between teacher and students), cognition of children, pedagogical skills, and structure of lesson.

Interviews, Exit Tickets, and Observation Protocols

Qualitative and quantitative instruments were utilized to collect data related to extent of dose delivered. Qualitative instruments used included midpoint interviews, post-intervention interviews, field notes, and the researcher's diary. Participants were asked, "To what extent were all of the intended components of the intervention provided to you?" in both midpoint and post-intervention interviews, while field notes and the researcher's diary tracked changes to the intervention schedule, details on session content, and data on the participation of the teachers involved. Quantitative data under analysis was collected through two instruments: exit tickets, which asked participants whether each session met its stated goal, and observation protocols, which tracked participant attendance, Google Classroom modules viewed, exit tickets submitted, and journal entries completed. Sessions meeting their stated objectives and participants attending and participating in all tracked activities are indicators that the intended components of the intervention were provided to the appropriate extent.

The findings on extent were similar to those for quality of delivery as reported above. During midpoint and post-intervention interviews, participants spoke highly of the extent to which all program elements were delivered to them. In her midpoint interview, Participant A said, "Everything I expect is [in the sessions]," while Participant B felt that the intervention was "really well done." Respondents were more effusive upon the intervention's conclusion. Participant D explained, "We achieved everything we wanted to achieve. We had a lot of sessions, planning, [and] follow-ups." Participant A responded to the extent question by saying,

“Everything was excellent,” and Participant B remarked that components were delivered to a “high extent.” This feedback was similar to that provided through participants’ exit ticket responses.

One post-session exit ticket prompt was designed to elicit participant responses on the extent to which all the intended components of the intervention were provided to program participants by asking if the session met its stated objectives. Meeting session objectives is one indicator that the components of the intervention were being delivered to an appropriate extent. Of the 42 responses to the prompt, only one was less than a 5, which was the highest positive rating on the scale, and that score was a 4 from one participant after Session 2. The mean response to the question was 4.98 out of 5, and the range was 4-5. This result conformed to the data collected through other instruments and indicated that participants felt the full extent of intervention components were provided to them.

The observation protocols provided an overview of key measures of the extent to which intended components of the intervention were provided to participants. Attendance was consistent, and two participants managed to attend every session. No participant missed more than one session. The observation protocol also captured the number of modules viewed by participants, exit tickets completed, and completed journal entries submitted. This data is captured in Table 5.2, which shows that journal entries were the activity least likely to be completed.

Table 5.2

Completion of Activities as Indicated by Observation Protocols, N = 44

Activity	N (%)
Modules Viewed	42 (95.5)

Exit Tickets Completed	42 (95.5)
Journal Entries Completed	30 (68.2)

Modules viewed was aligned closely to attendance; if a participant was at the session, they by necessity viewed the Google Classroom modules. When a participant was absent, I would ask them if they had the opportunity to view the modules between sessions. If the respondent was unable to do so, that session's module was considered unviewed. Frequent absences, an abundance of unviewed modules, and unanswered exit tickets would be indicators of diminished extent of delivery. But while participation in those areas was consistently strong throughout the sessions, there was one area in which participation was more limited: journal entries. Participants exhibited occasional reluctance to complete journal entries, and this reticence is reflected in the observation protocol data: while 95.5% of modules were viewed, 95.5% of session attendance was recorded, and 95.5% of exit tickets were completed, less than 70% of journal entries were completed. It may have been useful to inquire about this during my interviews, but I neglected to do so.

The lack of journal entries submitted is an example of a part of the original intervention plan that did not work as intended, and while there are several examples of that, there were also elements that worked as intended, pieces that required modification, and challenges to delivering some components effectively. The next section consists of a review of the components of the intervention that fell into one of those categories, and how those components may have affected the extent to which the program was delivered as intended.

Elements of the Original Model that Functioned as Intended

Several elements of the original intervention model worked as intended and allowed me to deliver the components of the program to the appropriate extent. Participants spoke frequently

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of how well organized they felt the sessions and intervention were, and feedback on the content including elements of GRP and BL was generally positive, particularly after Sessions 1 and 2. The content-focused discussions led by teachers was an important element of the intervention's design, and participants were so enthused by those conversations that they asked for more time to continue them. The lesson study resources were useful and served their intended purposes, and the development of the lesson was a positive experience for participants. Additionally, despite technical concerns, the teaching and reteaching of the lesson proceeded as planned. The use of Google Classroom and Google Meet also proved to be valuable, and while participants did struggle at times with technology, their familiarity with both platforms because of their use at SSCS made me feel like my decision not to use alternative products like Canvas or Microsoft Teams was a good one. While the model worked well in many ways, changes were necessary over the course of the intervention to ensure that the intended dose of treatment was delivered.

Changes Made to the Original Model

There were a number of changes made to the intervention's original model, and most were rooted in either participant feedback or a lack of time. In some cases, participant feedback was direct, like a journal entry noting the need for more discussion, and in others indirect, such as participants choosing not to complete specific activities during the sessions or intersessions. One example of this direct feedback occurred during Session 4, when I reduced the activities per session to provide more time for conversation. In terms of indirect feedback, I ultimately eliminated the majority of in-session written activities that were to be completed in Google Classroom because participants made it clear that their preference was for collaborative activities and conversation. Participants shaped the sessions and spurred significant changes to the program's delivery. I moved away from pairing participants because they preferred to work as

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one group. As the lesson planning progressed, sessions began to shift away from imposed structure and pre-planned activities and became entirely centered on collaborative planning. Part of this shift was also related to time, since our schedule could sometimes not accommodate all that was originally planned.

From the first session of the intervention, time emerged as a concern. I became concerned early on that I would have to move some Session 1 activities to Session 2, which I believed would have a ripple effect on future sessions. That assumption was correct, as we began facing a time crunch during Session 5 that ultimately led to the addition of an 11th session. Upon the conclusion of Session 5, several critical components of the lesson had not yet been planned: expected student responses, the slides for the lesson themselves, and even the fable library that was needed to provide text choice to students. The schedule was modified to reorganize the sessions and to add an additional session, but it remained challenging to complete all the activities planned for each session, and participants did express some difficulties with the pace of the intervention at times.

Challenges to Extent of Program Delivery

Multiple challenges to delivering the full extent of the program emerged over the course of this intervention. The most pressing challenges were related to time, which was discussed in the previous section, participants' interest in completing certain tasks, and technology.

Exit tickets and journal entries presented a challenge at several points, as they were to be completed by participants after each individual session, unlike the first two items (attendance and modules viewed) on the observation protocol. Email reminders for exit tickets and journals were frequently sent to participants, and whenever possible participants were given time at the end of the session to complete these tickets. Unfortunately, sessions sometimes ran over their allotted

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time, and as a result exit tickets were not always submitted immediately upon completion of the session. In rare cases, exit tickets were submitted more than five days after the session. Journal entries presented a bigger challenge than exit tickets, as participants indicated that they did not enjoy completing them and would sometimes stop doing so for periods of time. For example, Participant C attended every session and was a vocal participant in the lesson study but stopped submitting journal entries from Session 7 to Session 9. Technology was an issue as well, as participants would sometimes post their journal responses as a reply, rather than submitting them as an assignment. I reminded participants several times during our first three sessions how to submit their entries, but this had minimal effect.

The most notable microtrend in this data is that no participant completed a journal entry after Sessions 7 and 11. There may be logical reasons for these entries going uncompleted: Session 7 ran 30 minutes longer than expected, and Session 11 was added to our schedule near the end of the intervention as a result of time constraints. Participants may have felt as though they had committed enough time to the intervention during those weeks and thus foregone submitting journal entries. It should also be noted that my email request to complete Session 11 entries was sent several days after the completion of the final session, and had I sent a reminder earlier, it is possible that participants would have completed their final entry. I also neglected to post the link to completing the entry in our Session 11 Classroom module.

Like quality of delivery, extent of delivery was negatively affected by technology. From the first session, I found myself troubleshooting technical issues related to logging into the Google Meet and Google Classroom services. Sessions 1 and 3 provided examples of technological problems slowing down the group's lesson planning progress, as users struggled to submit individual responses to Classroom prompts during the former session and had difficulty

with the formatting of a Google Form in the latter session. These challenges intensified during the first lesson observation, during which two participants were struggling to hear the classroom interactions. This led to me transcribing student responses in the Google Meet's chat client in real time so participants would have insight into these interactions. The technical issues and inability to see and hear everything happening in the classroom were two significant challenges, but ultimately did not prevent most of the intervention's components from being delivered as intended.

Summary of the Extent to Which Intended Components Were Provided

Dose delivered is one of the five ways program fidelity has traditionally been measured, and there appears to be a connection between fidelity of implementation and improved student outcomes (Dusenbury et al., 2003). Understanding the extent to which the intended components of an intervention were provided is critical to determining if the failure of a program is related to its design or its implementation (O'Donnell, 2008). In the case of this intervention, the intended components were provided to participants with fidelity based on the perceptions of both the researcher and the participants. Significant changes were made to the sessions, including the addition of a session, modifications to the planned activities, and occasional structural changes to the session layout. Because these changes were frequently in response to participant feedback, and because the planned content was still delivered, these modifications do not appear to have been deleterious to the delivery of the intended components of the intervention. Changes made because of time limitations would have resulted in some content being removed had an 11th session not been added to the schedule. These researcher perceptions were consistent with participant feedback.

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Participants indicated that they were satisfied with the extent to which the intervention's intended components were delivered. During interviews, participating teachers spoke highly of the extent of component delivery, with all four participants praising this aspect of the intervention. Additionally, feedback from exit tickets indicated high levels of satisfaction with the extent to which components were provided, as all participants either *agreed* or *strongly agreed* that the sessions met their goals in exit ticket responses. There was little variation in opinion expressed in the exit ticket responses despite the challenges to the extent of program delivery we sometimes faced.

Participants generally seemed to prefer in-session work to intersession or post-session work, a sentiment made clear by the number of missed journal entries and through participant feedback. Two extended sessions resulted in no journal entries being submitted, and exit tickets were frequently submitted more than one day after the session. While email communication from researcher to participants was frequent, it was not always timely enough to precipitate participants submitting their journal entries. Ultimately, the teachers participating in the intervention felt that the components of the intervention were delivered as intended.

Self-Reported and Assessed Changes to Participants' Knowledge and Beliefs

The third and fourth research questions shift from process to outcomes. Research Question 3 asked participants what changes if any they perceived in their knowledge and beliefs related to boys and literacy after professional development on balanced literacy and gender-relevant pedagogy. Journal entries and interviews provided insight into participants' views of their knowledge and beliefs during and after the intervention, while field notes and researcher's diary entries provided opportunities for triangulation. After a thorough review of the data, a number of salient themes emerged. Participant perceived changes included general changes to

beliefs, student-centered instructional design, and student-centered instructional practice. In this section, general feedback on changes to knowledge and beliefs will be discussed, followed by a discussion of themes that emerged from the analytic stage, and concluding with a summary of participant-perceived changes to their knowledge and beliefs related to boys and literacy.

General Changes to Knowledge and Beliefs

Participants reported several changes regarding their knowledge and beliefs related to boys and literacy based on data collected from exit tickets, journal entries, and interviews. The mean response to the exit ticket prompt “Today’s session modified my knowledge of teaching literacy to boys” was 4.48 with 5 being the highest attainable score. There was a wide range of responses across all sessions, but this was largely driven by one participant. Of seven total responses that did not indicate agreement or strong agreement with the prompt, Participant A was responsible for six of them. Expressed another way, Participant A’s mean response was 3.45, which is significantly lower than the overall mean of 4.48. This trend was also observed in responses to an exit ticket prompt about changes to beliefs. Tables 5.3 and 5.4 capture responses to two exit ticket prompts: “Today’s session modified my knowledge of teaching literacy to boys” and “Today’s session modified my beliefs about teaching literacy to boys.” Participants largely *agreed* or *strongly agreed* with both prompts, though one participant was more likely to disagree than the others.

Table 5.3

Responses to the Exit Ticket Prompt “Today’s Session Modified my Knowledge of Teaching Literacy to Boys”

Disagree/Strongly Disagree <i>n (%)</i>	Neutral <i>n (%)</i>	Agree/Strongly Agree <i>n (%)</i>
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Session 1 ($N = 4$)	0 (0.0)	1 (25)	3 (75)
Session 2 ($N = 4$)	0 (0.0)	1 (25)	3 (75)
Session 3 ($n = 3$)	0 (0.0)	0 (0.0)	3 (100)
Session 4 ($n = 3$)	0 (0.0)	0 (0.0)	3 (100)
Session 5 ($N = 4$)	0 (0.0)	0 (0.0)	4 (100)
Session 6 ($N = 4$)	0 (0.0)	1 (25)	3 (75)
Session 7 ($N = 4$)	0 (0.0)	0 (0.0)	4 (100)
Session 8 ($N = 4$)	0 (0.0)	1 (25)	3 (75)
Session 9 ($N = 4$)	0 (0.0)	0 (0.0)	4 (100)
Session 10 ($N = 4$)	1 (25)	0 (0.0)	3 (75)
Session 11 ($N = 4$)	1 (25)	1 (25)	2 (50)

Table 5.4

Responses to the Exit Ticket Prompt “Today’s Session Modified my Beliefs about Teaching Literacy to Boys”

	Disagree/Strongly Disagree n (%)	Neutral n (%)	Agree/Strongly Agree n (%)
Session 1 ($N = 4$)	0 (0.0)	1 (25)	3 (75)
Session 2 ($N = 4$)	0 (0.0)	1 (25)	3 (75)
Session 3 ($n = 3$)	0 (0.0)	0 (0.0)	3 (100)
Session 4 ($n = 3$)	0 (0.0)	0 (0.0)	3 (100)
Session 5 ($N = 4$)	0 (0.0)	0 (0.0)	4 (100)
Session 6 ($N = 4$)	0 (0.0)	1 (25)	3 (75)
Session 7 ($N = 4$)	0 (0.0)	0 (0.0)	4 (100)

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Session 8 (<i>N</i> = 4)	0 (0.0)	1 (25)	3 (75)
Session 9 (<i>N</i> = 4)	0 (0.0)	0 (0.0)	4 (100)
Session 10 (<i>N</i> = 4)	1 (25)	0 (0.0)	3 (75)
Session 11 (<i>N</i> = 4)	1 (25)	1 (25)	2 (50)

Exit ticket data indicated that most participants felt that each session modified their beliefs about teaching literacy to boys. The mean response to the prompt “Today’s session modified my beliefs about teaching literacy to boys” was 4.53 while the range was 2-5, identical to that of the exit ticket knowledge prompt. Of the six responses to the prompt that were not in agreement or strong agreement with the statement, five were provided by Participant A. Further, of those six responses, four came between Sessions 6 and 11. This was not surprising, given Participant A’s feedback during interviews that the elements of BL and GRP were addressed and discussed during the earlier sessions, but less so as the lesson study progressed. Other participants’ experiences remained largely consistent throughout the course of the intervention. Participant C provided a neutral response to both the knowledge and beliefs exit ticket prompts after Session 11, and field notes captured her explaining that because she was actively teaching the lesson during that session, she did not feel as though she was learning new things. Participant C was also teaching during Session 9, but she did report changes to her knowledge and beliefs after that session.

Journal entries and interview responses indicated some general changes to participants’ thinking related to boys and literacy. In her journal entry after Session 4, Participant C wrote, “I have changed my initial feelings regarding boys and reading in many ways,” while Participant B explained, “I now see research can show a difference between boys and girls” and hoped that this research would be “further developed.” Participant D stated that boys “need a little extra in order

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to become engaged” in reading and spoke generally of providing boys with more options during her lessons. During interviews, participants expressed similar sentiments. Participant B explained that her feelings were not necessarily changed but were evolving, while Participant A expressed that she was experiencing “not so much a change in a belief, as a focus on [beliefs about boys and literacy] more.” Participant D described perhaps the most significant shift of the participants and was able to connect the work we did during the intervention to her own experiences with the literacy assessment software used at SSCS. She said, “I came in with no beliefs. Now, I’m starting to see that boys do struggle more with reading, [and] it’s evident on our i-Ready assessments, too.” Despite not being specific in most cases, these responses suggest shifts in the knowledge and beliefs of participants, and “general changes to knowledge and beliefs” was a frequently observed code in journal and interview data.

Participants also reported increased awareness of gender differences in classroom settings during the intervention, and this increase in awareness began at the onset of the intervention but intensified as the sessions progressed. In a conversation captured in field notes during our first session, Participant D said, “There truly are gender differences that should be acknowledged” after the review of GRP components. During our first round of interviews, Participant B reported that she felt “an awareness that I never put into perspective” about boys and traditional literacy instructional practices, while Participant A remarked that she experienced “not so much a change in a belief [about boys and literacy] as a focus on it more.” All four participants reported increased awareness of gender differences during the interviews conducted after Session 5, and three continued to discuss changes in this regard during post-intervention interviews. Participant D explained that the intervention “has definitely changed my thinking that every student is the same,” and Participant B continued to elucidate a shift in her perspective, explaining that prior to

the intervention, she “never really perceived the difference between boys and girls.” As participants’ views of boys and literacy shifted, they began to cite more specific examples of changes to their knowledge and beliefs. Some of the most notable shifts involved their conceptions of student-centered instructional design.

Student-Centered Instructional Design

Instructional design is a “process to plan, create, and modify structured possibilities such as conditions, interventions, or environments to facilitate learning” (Kale, Roy, & Yuan, 2020, p. 2477), and student-centered instructional design aims to resituate the power and attention in an instructional environment from the teacher to the students (Dahl, 2018). Student-centered instructional design was a key area of growth for participants based on data collected during interviews and from journals, as well as from conversations among participants captured in field notes. Participants’ knowledge and beliefs related to instructional design became more focused on student choice and engaging all learners, including male students, through an array of activities and through the use of a variety of texts. Some of the most frequently occurring codes related to this theme were text choice, diversity of texts, diversity of activities, and kinesthetic activity. A number of codes related to the subtheme of personalization also emerged and will be discussed towards the end of this section.

Participants placed an emphasis on text choice and diversity of texts, two codes that emerged during interviews, journal entries, and field notes, and this emphasis remained consistent throughout the intervention. In her first journal entry, Participant D wrote that she had learned to “incorporate different materials that boys may have interest in” into her instruction, while Participant C wrote that “[boys may require] different types of material” to become engaged. During the final journal entries, which were submitted after Session 10, Participant B

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noticed that boys tended to pick the same fable to read during class, which bolstered her appreciation of text choice and providing diverse reading options to students. Participant C was the only participant to discuss how her perceptions of what is appropriate literature for her students changed, but she discussed this shift in her thinking in a journal entry, during an interview, and in conversation during a session. By Session 3, she wrote that she had “come to view graphic novels and less formal reading material as appropriate” for students and explained during her first interview that “prior to this, I was kind of like...this is classic literature, this should be read.” Participant D’s final journal entry summed up the predominant opinion about boys’ engagement with different texts: “Different reading materials do make a difference.” These shifts in thinking could potentially influence the books participants assign in the future and how classroom libraries are stocked.

Participants also spoke at length about text choice and text diversity during interviews. Two participants came to believe that the texts being chosen for students were not always generating engagement in boys, and Participant C said, “The most important lesson for me is really understanding that boys need to find a character or a theme in a story that’s relatable to them.” She concluded that “when [students] take ownership, they’re more invested in the literature.” Because text choice and student choice are central tenets of GRP, they were introduced to participants during our earliest sessions and were frequently discussed during our lesson planning. Similarly, activity types and providing diverse activity options to boys and girls became a focus early in the intervention and remained so through our planning and teaching processes.

Kinesthetic activity and providing activity choice were mentioned by all four participants across data sources, though these codes were most frequently noted in journal entries and field

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notes. In a Google Classroom post captured in a field note, Participants S and P responded to a prompt about GRP together, writing that they “see evidence when there is movement [that] boys are engaged,” and therefore agreed that GRP had the potential to enhance boys’ engagement in ELA classes. Participant D concurred during the same session, explaining that she thought a theater activity should be integrated into our lesson because “boys tend to act out more and enjoy engaging in that type of way,” while Participant A advocated for the inclusion of a chart paper activity because it would “keep them moving.” Journal entries reinforced participants’ beliefs about kinesthetic movement. For example, Participant C wrote in her Session 1 entry that “boys may require more...movement,” while in her Session 4 entry, Participant B elaborated on her changing beliefs by explaining that she now had a “higher perception that other physical activities need to be incorporated into lessons to engage boys.” During our first interview, Participant C explained, “I think boys are now a little more physically active [than girls].” Her beliefs appear to have shifted early then remained fixed in this regard, as three of her later journal entries included the phrase “boys benefit from hands on activities that may require more movement and less dialogue.” The volume of times participants discussed student movement and kinesthetic activity indicate that this was an area of focus, and it is unsurprising that participants chose to include it in the lesson they designed.

Kinesthetic activity was the most frequently discussed GRP component throughout the intervention, and during our lesson planning there was unanimous agreement that movement should be included in the lesson despite the challenges presented to having students move freely with COVID-19 restrictions in place. Participants also felt that providing students with options related to classroom activities would create engagement, reinforcing participants’ belief in the criticality of choice to creating student engagement.

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While not as prevalent in the data as the kinesthetic activity code, participants made multiple references to providing students with activity choice. Participant B tied choice and kinesthetic activity together during her first interview, explaining that, “When teaching literacy, boys responded to movement, changing activities, and choices in assignments.” Participant D wrote in her Session 8 journal entry that she would be “giving the options of different activities [students] can complete as opposed to the standard assignments” based on our review of GRP. In a conversation captured in a field note, Participant A offered the group her opinion on activity choice in our lesson. She said, “Give them a choice [in how they compose a fable]. Maybe they do it as a graphic text, maybe they physically create a thing, maybe they write it if that’s what they want to do.” Participants indicated across multiple data sources that they felt boys would be engaged by a choice of activities and the integration of movement into their lessons. Participants also recognized ways they could personalize lessons to ensure that boys and girls were engaged by the activities and resources included in a lesson.

Personalization. Personalization is the efforts undertaken by a teacher or school to suit instructional programs to the student body and individual students being taught (Keefe, 2007). Creating engagement for boys, understanding how boys learn literacy, embracing diverse learning styles, and considering the interests of boys and girls in lesson planning are codes that can be grouped under the subtheme of personalization. Creating engagement was a code found across datasets, as all four participants discussed boys’ engagement at various times, and ways to engage boys and girls in our lesson was a topic of frequent discussion. Participants found evidence of the differences between boys’ and girls’ interests while observing the teaching of the lesson. Participant B wrote that “all the boys had similar fable choices and clearly have similar interests” in her Session 9 journal entry, while in her post-intervention interview Participant D

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elaborated that “you have to delve in a little deeper to think about what could be interesting for boys” when planning a lesson. Further, GRP appeared to encourage participants to consider boys’ interests. Participant A’s response to a Google Classroom prompt about the value of GRP made this clear as she wrote, “I believe that gender-relevant pedagogy may help teachers address and include boys’ interests by making us more conscious in our planning and instruction, and by making us aware of potential strategies.” Participant C became particularly aware of the different ways some boys and girls learn, writing that “our style of teaching may be more in line with how girls learn best” and further relaying that “differentiated learning is necessary to meet the learning needs of both boys and girls.”

Student-Centered Classroom Practice

Classroom practice encompasses the teacher’s establishment of an environment of respect and dialogue, approach to classroom management, use of diverse questioning and discussion techniques, and methods of creating engagement among students (Danielson, 2012).

Codes related to classroom practice were frequently noted in the data, though participant responses showed greater variety in comparison to codes related to instructional design.

Participant C focused on flexibility, writing that she intended to “be more flexible in my teaching of literacy to boys” and going on to explain that “boys may require more flexibility in seating.”

Participant C also noted in both a journal entry and interview response the importance of using humor to relate to boys because as she noted in one entry, “boys use humor to convey understanding.” This was a sentiment Participant A agreed with, remarking during an in-session discussion that she used humor to relate to her eighth-grade boys. She explained, “We joke around a lot, and... the joking and camaraderie, it keeps them engaged.” Participant B discussed modeling, a component of GRP, and came to believe that “boys feel more empowered on how to

handle the task after modeling,” while Participant A elaborated on her belief that student-teacher interactions are an important part of instructional classroom practice, explaining during her post-intervention interview that she “always need[s] to hear what [her students] are thinking.” There was little consensus with regards to which aspects were most important, but most participants made a number of references to student-centered classroom practices across data sources.

No Changes to Knowledge and/or Beliefs

The code “no changes to knowledge and/or beliefs” is worthy of examination, as it was noted 21 times across data sets, but 20 of those instances were from one participant. Given the small sample size included in this study, one individual’s perceptions represent important data, and Participant A’s feeling that neither her knowledge about nor beliefs related to boys and literacy changed much over the course of the intervention was referenced earlier in this section. Codes that do not recur frequently or cannot be converged into themes may still be salient and worthy of analysis (Buetow, 2010). Participant A noted that she felt it was too early to assess changes to her knowledge or beliefs after Session 2, and by Session 3 wrote, “I’m not so sure it’s a change in belief so much as a confirmation that others support what I have observed” and explained that “what we discussed confirmed what my practice has shown me.” Participant A was an active, engaged participant who was a frequent contributor to our discussions and our lesson plan, so while she did not feel that there were “substantive changes” to her knowledge and beliefs at the midpoint of the intervention, she went on to write that, “I can’t say I’m learning anything new, but our process is helping to excite me about GRP” in her Session 5 journal entry. During our post-intervention interview, she said, “I hate to say that I don’t feel like there was that much change in my knowledge” and went on to remark that GRP and discussions about boys and literacy were “interwoven in our discussions, but it wasn’t like we were learning new things.”

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Participant A's responses may indicate that I entered into the intervention with assumptions about teachers' knowledge and beliefs about boys and literacy. Given Participant A's feeling that her existing beliefs were reinforced and that her prior practice was confirmed, it is worth considering that I assumed lower levels of knowledge and less substantiated beliefs related to boys and literacy than at least one participant possessed.

Quantitative Data on Changes to Knowledge and Beliefs

This mixed methods study relied on both qualitative and quantitative instruments to assess and analyze how professional learning rooted in the Japanese concept of lesson study affected teachers' knowledge and beliefs pertaining to boys and literacy. The BBRI survey and KBRI quiz were the primary quantitative instruments used to collect data to answer the third fourth research question regarding changes in knowledge and beliefs. These assessed changes to knowledge and beliefs are in some ways closely aligned with the qualitative data collected, though quantitative data on changes to beliefs were inconsistent.

Changes to participants' beliefs about boys and literacy. The BBRI provided insight into how participants' beliefs changed over the course of this intervention. The survey was given twice: once during Session 1, then again during Session 11, spanning the period from November 6, 2020 to February 8, 2021. While participants learned regularly about boys and literacy during the intervention, the specific questions in the BBRI and KBRI were not addressed during the intervention to ensure that any changes detected by these instruments would be organic. In this section, the BBRI pre- and posttest results are analyzed, and relations between BBRI data and data from qualitative sources are considered. Table 5.5 shows the BBRI questions grouped according to four themes: beliefs about boys' learning, beliefs about boys and teachers, beliefs about boys and schooling, and beliefs about boys' engagement and preferences. Several trends

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emerged from the analysis of these categories. A review of this table reveals numerous changes to medians and ranges across question groupings, though there is little consistency to these changes. A two-tailed t test of the medians of all items showed no significant changes between the pre- and post-intervention administration of the survey.

Table 5.5

Pre- and Posttest Performance on the Beliefs about Boys and Reading Instrument

Theme	Item #	Topic	Median Pre	Median Post	Range Pre	Range Post	Range Low-High Pre	Range Low-High Post
Beliefs about Boys' Learning								
	5	BoysBrains	5	4	2	3	3-5	2-5
	9	AssessmentPractices	3.5	3.5	2	1	2-4	3-4
	12	BoysReadingLevels	3.5	3.5	2	2	3-5	3-5
	13	LiteracyTeachingPractices	3	3.5	2	1	2-4	3-4
	14	GenderReadingFactor	4	4	1	1	4-5	4-5
Beliefs about Boys and Teachers								
	1	MaleModels	3.5	4	2	1	3-5	4-5
	2	TeachersMaleCulture	3.5	4.5	1	1	3-4	4-5
Beliefs about Boys and Schooling								
	3	BoysBehavior	3.5	4	2	1	3-5	3-4
	4	FocusBoysEd	2	3.5	2	2	2-4	3-5
	7	BoysNotReadySchool	3.5	2.5	3	2	2-5	1-3
	10	ReadingActivitiesGirl	3.5	3	3	2	2-5	2-4

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Beliefs
about Boys'
Engagemen
t and
Preferences

6	BooksHighInterest	3	3	3	3	2-5	2-5
8	NonfictionVsFiction	4	3	2	2	3-5	2-4
11	BoysTechnology	4	4	4	1	3-5	3-4
15	BoysLessEngaged	4	3.5	1	1	3-4	3-4

Beliefs about boys' learning. Participating teachers' beliefs about boys' learning shifted in several ways as indicated by their responses to Questions 5, 9, 12, 13, and 14. Upon completion of the intervention, participants were slightly more likely to believe that boys' reading achievement would improve if schools adopted different assessment practices. Beliefs about the development of boys' brains grew slightly more divergent based on pre- and posttest medians. Biological and development issues were not a focus of the intervention, but two participants did discuss children's cognitive development during post-interviews, and Participant C shared her belief that "there's a biological component where girls just tend to mature a little bit quicker." This may indicate that participants had more questions about boys' brains at the end of the intervention, which is reasonable given that biological differences in cognitive development was not a focus of our discussions during the sessions.

Beliefs about boys and teachers. Beliefs related to boys and teachers shifted in unexpected ways, as the dearth of male elementary school teachers and the notion that teachers must understand male culture to improve reading instruction for boys were two topics the intervention did not address in detail. The medians rose for both questions about those topics, and the range dropped on the former, which suggests increased belief and greater consistency among participants that more male teachers would improve boys' literacy. As discussed in

Chapter 3, there is little evidence that male teachers positively influence boys' academic performance, and this change in beliefs does not seem to be rooted in any of our intervention activities.

Beliefs about boys and schooling. Given that most of the topics grouped under the beliefs about boys and schooling theme were discussed in detail during the intervention, I anticipated some changes to participants' beliefs. Participants were slightly more likely to believe that boys' behavior at school significantly affects their levels of reading achievement, and there was also more agreement with the prompt "There has been a lack of focus on boys' education over the last two decades." The medians and ranges dropped on Items 7 and 10. Participants became less likely to believe that boys are not ready for school at the compulsory entry age and less likely to believe that boys often think that reading activities are more appropriate for girls and women. These results were not consistent with the goals of the intervention, especially given that boys do often consider reading to be more feminine than masculine (Dutro, 2002; Plante et al., 2009). Qualitative data indicated that participants' perceptions of what texts should be available in class shifted during the intervention, so it is possible that participants began to see the texts available to students as a concern, rather than boys' perception of reading as a masculine or feminine endeavor. While many of the BBRI results are difficult to interpret, it is possible to view this shift as positive if it means participants were shifting the onus of the literacy gap from boys to their learning environments.

Beliefs about boys' engagement and preferences. Shifts in beliefs about boys' engagement and preferences were unpredictable. Participants made frequent reference to the texts available in school not being aligned to boys' interests in their journal entries and interview responses, yet there was no change to the median or range for the prompt "there are not enough

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books of high interest value to boys available in schools.” GRP explicitly calls for incorporating different types of texts into instruction, but the median response to the prompt about boys preferring non-fiction to fiction dropped, indicating less belief in the accuracy of the statement. Participants’ beliefs about boys’ preference for technological forms of literacy remained mostly unchanged, though the range for the prompt dropped by one. After the intervention, participants were slightly less likely to agree that boys often tend to be less engaged than girls during reading instruction. While changes to participants’ beliefs were unpredictable in some ways, the KBRI instrument presented a clearer picture of shifts in teachers’ knowledge related to boys and literacy.

In summary, while there was no significant change pre- to post-intervention as measured by the BBRI, analysis of the shifts in medians and ranges suggest movement in beliefs over the course of the intervention. BBRI results were inconsistent and, while they do indicate shifts in participants’ beliefs, these shifts were not always consistent with the goals of the lesson study. Beliefs were not stable and appeared to be in flux after the training. Given the small sample size and the fact that a *t* test indicated no changes, results of the BBRI instrument indicate that the beliefs reported by the participants were not stable.

Changes to participants’ knowledge related to boys and literacy. While BBRI self-report data did not present any clear indication of significant changes to teacher beliefs, KBRI assessment results revealed changes to participants knowledge related to boys and literacy. Because all the questions presented binary comparisons between boys and girls, developing themes and grouping questions was not necessary. The key metric indicating improved knowledge was the respondent answering more questions correctly during the second administration of the KBRI, and by this metric participants showed improvement to their

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knowledge related to boys and literacy. Three of four participants answered more questions correctly during the posttest when compared to the pretest. Of the 18 questions asked, participants' correct responses decreased on two: two more participants responded incorrectly to the prompt "gender achievement gaps in reading tend to equal out in high school," while one more participant responded incorrectly to the prompt "Gender gaps in achievement have been proven to exist across racial/ethnic groups." While we did discuss the persistence of gender achievement gaps, we did not focus on racial or ethnic literacy attainment gaps during this intervention, which is one explanation for the decrease in correct responses to these prompts. Table 5.6 provides an overview of changes to participants' knowledge related to boys and literacy. Seventy-five percent of participants saw an increase in their total number of correct responses to KBRI prompts, and a one-tailed t test indicated that the change was statistically significant.

Table 5.6

Pre- and Posttest Performance on the Knowledge about Boys and Reading Instrument

<i>Participant</i>	<i>Pretest number of correct responses</i>	<i>Posttest number of correct responses</i>	<i>Difference</i>
A	12	15	+3
B	14	15	+1
C	12	12	0
D	12	15	+3

The table above illustrates several important trends in the pre- and posttest KBRI data. In addition to 75% of participants responding correctly to more prompts on the posttest,

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respondents selected a total of seven more correct responses out of 72 total responses provided by participants across 18 questions (an overall improvement of nearly 10%). Further, on the pretest, all respondents answered the same question correctly four times, while on the posttest, all respondents answered the same question correctly nine times. Because the goal of analyzing this data was to determine what, if any, positive changes took place in participants' knowledge, a one-tailed t test was used to determine if the results were statistically significant. The probability of significant changes was $p = .05$, which suggests that this intervention had a statistically significant effect on teacher knowledge about boys and reading. It is necessary to note that the small sample size is an important caveat to these results, since it means this conclusion is not generalizable beyond this study. Additionally, two participants had seen the instrument during the needs assessment. This will be discussed in greater detail in the Limitations section of this chapter.

Several findings from the KBRI are worthy of additional discussion. Participant A, who expressed her perception that she experienced no changes to her knowledge and beliefs about boys in journal entries and during pre- and post-intervention interviews, answered three more questions correctly on the posttest, indicating growth in her knowledge in this area. Additionally, the two prompts that showed the biggest increase in correct responses, were "children bring their gender identities with them on the first day of preschool" and "boys value reading as an activity less than girls do." Gender identity was discussed at several points of the intervention and participants connected their perceptions of students' gender identities to the texts provided to them. The shift in responses to the second prompt makes sense in light of participants' feelings that high interest texts are not always available to boys in school, which was noted several times

in journal entries. Analysis of KBRI responses supports the participants' perceptions that their knowledge related to boys and literacy grew over the course of the intervention.

Summary of Changes to Knowledge and Beliefs about Boys and Literacy

Several conclusions can be drawn regarding participant-reported changes to knowledge and beliefs about boys and literacy. Journal entries and interviews revealed the variety of ways participants felt their knowledge and beliefs had changed. Participants discussed general changes to their beliefs, the value of student-centered instructional design, personalization, gender identities and perceptions, and the importance of integrating student-centered classroom practices into instruction, and often referred to components of the intervention as the impetus behind these changes. Text choice and offering students a diverse array of texts from which to choose were emphasized, as were incorporating choice of activities and ensuring the integration of kinesthetic activities into instruction. Additionally, personalization emerged as an important subtheme of the larger student-centered instructional design theme, as participants discussed the importance of creating engagement for boys, understanding how boys learn literacy, and embracing the diverse learning styles of different students.

While one participant was largely responsible for the code "no changes to knowledge or beliefs," her feedback may prove valuable if this intervention is ever repeated. Weaving GRP and BL components throughout the intervention as Participant A recommended may contribute to teachers' learning and could engage future participants in improving literacy instruction for boys. Offering students choice, choosing diverse resources and activities, understanding the different ways boys and girls learn, and designing lessons to engage both boys and girls were the most noteworthy themes in changes to teachers' knowledge and beliefs related to boys and literacy. Participants were provided with copies of this chapter prior to its publication as part of

my member checking process, and none recommended any changes to the chapter's content, indicating that these conclusions are consistent with participants' experiences.

Most participants indicated that they experienced changes to their knowledge and beliefs about boys and literacy over the course of this intervention. Quantitative data generally affirmed the qualitative findings, though not uniformly. Participants overwhelmingly indicated that the intervention sessions modified their knowledge and beliefs when responding to exit ticket prompts. Results of the BBRI were not consistent with that perception, and no firm conclusions can be drawn from the BBRI data. While the ranges of responses constricted on most items, they did not do so in a way that was indicative of a larger pattern, even when questions were grouped and analyzed thematically. In contrast, KBRI results revealed statistically significant growth in participants' knowledge related to boys and literacy. Three participants answered more prompts correctly during the second administration of the instrument, and the overall participant rate of correct responses grew by almost 10%. Results of the KBRI supported both the perceptions of the participants regarding knowledge growth as well as those of the researcher.

Researcher-Perceived Changes to Participants' Knowledge and Beliefs

The final research question is similar to the third but is focused on researcher rather than participant perceptions. RQ4 shifts from the perspective of participants to the perspective of the researcher in asking what changes were noted in participants' knowledge and beliefs related to boys and literacy after participation in professional development focused on balanced literacy and gender-relevant pedagogy. It is important to first note that changes to beliefs can be difficult to foster, especially during an intervention conducted over a relatively short period of time, and also that knowledge and beliefs are sometimes intertwined. Participants advocating for student choice is one example of this, as their beliefs seemed to shift in favor of empowering students to

take ownership of their learning, but this shift was likely rooted in our discussion of GRP, which presented new knowledge to at least some of the participants.

Disentangling knowledge from beliefs can be challenging, especially given that this intervention aimed to influence both. With that noted, I classified increased awareness of the gender achievement gap in literacy as a change in knowledge and a focus on student choice and an emphasis on instructional design that engages boys and girls as changes to both knowledge and beliefs. The existence of the gender literacy gap is not a matter of belief. A participants' opinion of the value of student choice or designing for boys' and girls' engagement, on the other hand, can illustrate a change to knowledge given that these are principles adjacent to GRP, as well as a change in beliefs if the participant comes to feel that these strategies are valuable for teaching boys literacy. Learning about a component of GRP or BL is distinct from believing that it can be an effective classroom strategy, and participants appeared to do both during this intervention. The section addresses the three principle changes I identified during the study and concludes with a summary of researcher noted changes to participants' knowledge and beliefs related to boys and literacy.

The Literacy Achievement Gap between Boys and Girls

The pre-intervention administration of the KBRI revealed that participants were not always aware of boys' literacy attainment trailing behind that of girls. Over the course of this intervention, participants exhibited increased awareness of differences between boys and girls, and one area of focus of our early discussions were the struggles some boys faced learning literacy and how those struggles could negatively affect their academic futures. Participants did not discuss increased awareness of gender differences in early journal entries, but by the first round of interviews, two participants had addressed it. In post-interviews, three participants

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mentioned it, and all three made several remarks about their knowledge about boys' literacy attainment changing. In my field notes, I noted that participants were made aware of the literacy achievement gap and appeared to internalize that knowledge quickly. During the intervention, participants spoke of the literacy gap between boys and girls regularly and designed a lesson at least partially intended to mitigate it.

Boys' literacy attainment was explicitly addressed during the first two sessions of the intervention, and, like several GRP components, discussions about it became more common as the intervention progressed despite our focus shifting to lesson design. Field notes, KBRI responses, interviews, and my researcher's diary provided evidence of participants' shifting knowledge and beliefs as indicated in the RQ3 section, and my own observations of the sessions after viewing them twice reinforced this outcome. Participants expressed awareness of the literacy gap between boys and girls and were able to connect their experiences with instructional practice and design to reasons why this gap exists. This recognition may have been the driving force behind participants incorporating choice and designing for boys and girls while working on their lesson. The introduction of GRP led to participants considering the strategies they most commonly used to engage their students, and while participants noted that they used several GRP strategies prior to the intervention, their knowledge and application of these components to the lesson they designed collaboratively seemed to deepen their knowledge. Participants were not uniformly aware of the literacy achievement gap between boys and girls at the start of the intervention, so this represented an important shift in their knowledge related to boys and literacy instruction.

Providing Choice

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Participants discussed providing students with choice during lessons in a number of ways: activity choice, activity diversity, text choice, text diversity, assessment choice, and assessment diversity were all regularly discussed throughout our sessions. Because our first three sessions were frontloaded with GRP content, participants tended to discuss them frequently in their earliest journal entries. This can sometimes make change difficult to track, as some codes and themes emerged early, then were no longer centered in our sessions and were therefore less of a focus during interviews and later journal entries. Choice is one overarching theme that was prevalent in the data from the first session to the last. Diversity and choice of activities is a good example of this, as participants discussed these during Sessions 1, 5, 6, and 8. Diversity and choice of texts was similarly constant throughout participants' discussions, emerging in conversations and journal entries during Sessions 1, 2, 3, 4, 5, 6, 8, 9, and 10. The emphasis on diversity and choice of texts intensified during Sessions 6, 8, 9, and 10, which coincides with our planning and teaching sessions.

The planning of our lesson helped me understand where teacher knowledge and beliefs had shifted, since participants chose the GRP components to be integrated into the lesson. As I mentioned during the RQ2 section, participants chose to integrate transitivity, kinesthetic activity, peer review, mentor texts, choice of activity, and choice of texts into the lesson. While participants may have had familiarity with some elements of GRP, the integration of these strategies for the explicit purpose of engaging boys was new for most participants and represented new knowledge. The fact that the GRP components participants chose to work with were also some of the most frequently discussed strategies across data sources indicated to me that participants' knowledge and beliefs related to boys and literacy had been modified.

Designing and Teaching for Boys and Girls

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In my researcher's diary, I noted that, during our session after the initial teaching of the lesson, participants felt that the lesson's mixed modalities kept both boys and girls engaged and shifting between speaking, moving, writing/drawing, and collaborating. In a Session 9 field note, I wrote, "Participants all felt that boys in the class were more engaged than they were during an ordinary lesson." Designing the lesson to engage boys and girls and considering the interests of the boys in the class were also areas in which I noticed change in participants' knowledge and beliefs. Participants wrote and spoke about allowing boys to use humor to relate to their teacher and each other, incorporating different learning styles into their planning, and individualizing their lesson plans, and in doing so indicated potential shifts to their professional practice. Participants also went beyond writing and talking and worked to incorporate these elements into the lesson, and Participant C put using humor and individualization into classroom practice during both teachings of the lesson. Upon reviewing the 11 sessions of the intervention, it became clear to me that the consideration of boys and girls in planning was not new to participants but was being done in a more intentional manner during their lesson planning.

While providing choice is one way to design for boys' and girls' engagement, I saw a distinct shift in participants' perceptions of lesson planning. Based on our discussions, I believe each participant in the study considers all their students when they plan lessons, but this intervention explicitly encouraged participants to incorporate boys' interests into lessons and explored ways that could be done without designing multiple variations on a lesson or unit plan. Participants ensured that at least one of the fables offered to students featured a male protagonist and a dog, and most boys ended up selecting that fable for study. Participants saw directly how being intentional in designing for boys and girls can have an immediate effect on students. Similarly, when Participant C allowed a boy to joke every time a certain word was said,

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participants noticed the liveliness of the students, who remained focused on the task but also appeared to be enjoying themselves. These object lessons in designing and teaching for boys and girls led me to perceive that participants' knowledge and beliefs related to boys and literacy had been modified.

Summary of Researcher-Perceived Changes to Knowledge and Beliefs

Researcher-perceived changes to participants' knowledge and beliefs related to boys and literacy were documented in field notes, the researcher's diary, and in personal recollections of the 11 sessions I conducted. While trends in the data including increased awareness of gender differences were sometimes similar to those uncovered during an analysis of the data related to RQ3, there were also unique findings related to RQ4. One of the most notable themes that emerged was greater awareness of the literacy achievement gap between boys and girls among participants, which was not captured by most instruments. I also noticed an emphasis on student choice in several areas, including assessments, texts, and activities, as well as a shift in how some participants approached designing a lesson to engage all students.

While greater awareness of the gender literacy achievement gap did not often manifest itself in journal entries or interviews, I noted it several times in my field notes and researcher's diary. I also found that, after reviewing the data holistically, this increased awareness of the gender literacy gap was apparent in several ways: participants discussed reasons boys may fall behind in learning literacy, spoke of reviewing literacy assessment data and noticing that girls outperformed boys, and came to see how instructional planning and design might be used to address this gap. Student choice was correlated to empowerment, and one theme of our early discussions was providing boys with the tools they need to feel empowered in literacy classes. The process of integrating GRP components into our lesson pushed participants to be mindful of

the interests of all students during their lesson planning and provided guidance in creating a lesson engaging to boys as well as girls. While these changes were not always noted in a variety of data sources, they became clear to me as I began the process of assembling Chapter 5. While awareness is not a strategy in and of itself, being cognizant of the literacy gap between boys and girls is an important first step towards addressing it. These researcher-perceived shifts to participants knowledge and beliefs related to boys and literacy indicated that the intervention achieved several of its goals and had an influence on the participants.

Discussion

After an 11-session intervention spanning 14 weeks designed to incorporate elements of gender-relevant pedagogy and balanced literacy, participants indicated that the quality of program delivery was high and that the program was delivered to the necessary extent. Participants were also able to identify numerous changes to their knowledge and beliefs related to boys and literacy. Additionally, I perceived three changes to participants' knowledge and beliefs that were worthy of discussion. Several takeaways emerged upon the conclusion of the intervention, including those related to processes and outcomes. These conclusions are the result of analyses of qualitative and quantitative data collected for this mixed methods case study. The use of multiple data sources enhances triangulation, as conclusions drawn through qualitative data analysis were compared to quantitative findings. These takeaways may help future researchers who plan on using lesson study to influence teachers' knowledge and/or beliefs.

The process of implementing the program was generally smooth, though not entirely without its challenges. Participant feedback regarding quality and extent of delivery was largely positive, but it was established over the course of the intervention that in-session writing prompts were not popular, intersession activities needed to be kept to a minimum, and journal entries

were the most likely activity not to be completed. This finding is consistent with a conclusion from Nickerson et al.'s (2012) study of a hybrid online/in-person lesson study, during which participants used the website designed for the collaborative planning, but did not participate in many sustained asynchronous discussions or share many substantive discussion posts.

Participants also expressed clear preference for working as one group rather than working in pairs, which led to several planned activities being modified or dropped from the program. Given that one element of effective professional development is collaboration (Desimone & Garet, 2015), it should not be surprising that participants eschewed individual activities in favor of group work. Working with four participants presented challenges related to the generalizability of the data but also allowed me to conduct a deeper investigation of participants' experiences, and small sample sizes can yield meaningful data if the cases under analysis are information-rich (Patton, 1990). The small sample size also meant participants were interacting frequently throughout the intervention, which seemed to strengthen the quality of their collaborative work.

The biggest threats to quality and extent of delivery were interrelated, as COVID-19 loomed large over the intervention and led to a variety of technological challenges for participants, challenges that became less frequent but were never entirely resolved. As a result of COVID-19, major modifications were made to the design of the intervention, the design of the lesson to be taught, and the way participants interacted during the sessions. Shifting from in-person to virtual sessions meant participants were often trying to get home from work in time to join our session, rather than participating in traditional professional development in their workplace, and that led to technical issues ranging from home connectivity problems to participant devices not working properly. Because we were never in the same room, I was unable to quickly resolve these issues when they arose. An unexpected consequence of not meeting in

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person was lost time to both technical difficulties and participants not always being able to make the session at its start time, which at times led to issues with pacing during the intervention as a whole. Ultimately, these challenges led to the addition of an 11th session when only ten were planned. Participants indicated that they perceived changes to their knowledge and beliefs related to boys and literacy. As the researcher, I perceived changes as well, though I found it difficult to disentangle knowledge from beliefs at times. This interrelatedness can be connected to Clarke and Hollingsworth's (2002) interconnected model of professional growth – enaction and reflection processes bidirectionally influence knowledge, beliefs, and practice.

Participants spoke specifically of changes related to their perceptions of student-centered instructional design, personalizing instruction for boys and girls, and student-centered classroom practice, though one participant frequently noted that she did not often feel perceptible changes to her knowledge or beliefs during the intervention. Several of the instructional design elements teachers discussed across data sources are part of what Brozo (2010) called “boy-friendly” instructional approaches, and some were also included as components of GRP. Lesson study has shifted instructional approaches in past studies, as teacher participants have experienced transformations in their viewpoints and instructional practices (Pella, 2011) and indicated that they believed their instructional practice improved after the completion of a lesson study (Chong & Kong, 2012). Coaching a teacher to provide choice and personalization through GRP has improved engagement among male students while modifying that teacher's perceptions of her students (Bristol, 2015). Design study, a variation on lesson study, has also enhanced teachers' pedagogical content knowledge (Oshima et al., 2006).

I noted changes to participants' knowledge related to awareness of the gender literacy gap, and changes in knowledge and beliefs related to student choice and designing for all

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students. While no previous study specifically focused on knowledge and beliefs related to boys and literacy or the gender literacy gap, existing research indicates that lesson study has improved teachers' classroom practices by fostering patience with their students and their learning and helping them grow and enhance their teaching (Ermeling & Graff-Ermeling, 2014).

Quantitative data indicated that participants generally felt that their knowledge and beliefs had changed during the intervention and revealed statistically significant growth in participants' knowledge related to boys and literacy but did not indicate any clear shifts in participants' beliefs. While existing research indicates that lesson study can directly influence teacher knowledge in ways that enhance student learning (Lawrence & Chong, 2010), inservice teacher education has had considerable but variable impacts on teacher beliefs (Borg, 2011). Given that the act of articulating beliefs makes teachers more aware of the meaning and effects of these beliefs (Farrell & Ives, 2015), lesson study may be one way to encourage this introspection in participants, given that it encourages discussions about how teachers design for their students, and what factors influence those designs.

Participants uniformly reported enjoying the lesson study process and compared it favorably to their previous experiences with professional development. They discussed the value of collaborative planning, the importance of interacting with their peers, and feeling a shared sense of accomplishment during the design and teaching phases of the intervention. Lesson study has traditionally been used to improve student outcomes in mathematics. This study affirms the value of lesson study for ELA teachers, which contributes to the existing body of literature on lesson study in literacy classes. The results are consistent with other studies that have illustrated the positive effects lesson study has had on literacy teachers (Benedict et al., 2013; Cammarata & Haley, 2018; Hurd & Licciardo-Musso, 2005). The conceptual framework for this study

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treated various forms of teacher knowledge as the driving force behind instructional strategies and literacy practices, while teacher beliefs are considered amplifiers and filters of this knowledge. Knowledge is processed through teacher beliefs which informs classroom practice and ultimately influences student outcomes. Lesson study appears to have influenced both participants' knowledge and beliefs, and as a result its use conformed with the study's goals and the conceptual framework chosen to achieve those goals.

Limitations

There were several limitations to this study: the introduction of a new form of professional learning virtually, small sample size, lack of time available to participants, courtesy bias, the sensitivity of the BBRI to show changes over a short period of time, and the influence of the COVID-19 pandemic chief among them. Attempting to present a new form of professional learning and new approaches to teaching boys and literacy to participants was particularly challenging because participants first had to be acclimated to lesson study prior to beginning our work together, and this acclimation process reduced the amount of time available to discuss GRP and BL during our early sessions. This was also my and the participants' first time participating in remote professional learning, which created discomfort at times during the sessions.

Because of the small sample size ($N = 4$), it is unlikely that generalizable conclusions can be drawn from the study. While changes to participants' knowledge were statistically significant, the validity of this claim can be questioned due to only four participants being included in the study. Extrapolating from a small sample is not always possible or desirable. This case study was designed to go into depth regarding the experiences of the participants with the hopes that a larger study can be conducted in the future and that this case can contribute to the bodies of knowledge on lesson study and boys' literacy. It can also be argued that sample size is not a

limitation of this study, since sample size should depend on “what you want to know, the purpose of the inquiry, what will be useful, what will have credibility, and what can be done with available time and resources” (Patton, 1990). Given the potential trade-offs between the breadth of a study and the depth of a study, the size of the sample may be perceived as appropriate.

Time was a constant factor throughout this intervention. The principal approved the ten-week period and agreed to extend it to 14 weeks when that modification became necessary, but there was limited additional time available to us. Constraints related to standardized testing dates, extended school holidays, the COVID-19 pandemic, and the total amount of time allocated to professional learning for the school were all factors in the length of the program. Had we been able to meet in person, we would have circumvented the time spent setting up devices, signing into multiple platforms, and addressing streaming issues and had more time to work through the lesson study itself. Had the intervention been conducted in person, some of these concerns would have been mitigated or non-existent. Additionally, even if participants had been able to attend physically, the intervention’s time frame only allowed for 11 sessions, and participants expressed limited interest in completing several of the intersession activities.

One challenge to assessing quality of delivery is related to participants’ relationship with me during the intervention. Responses to questions regarding quality of delivery may be influenced by courtesy bias, which indicates that the respondent or participant answering questions is doing so with the intention of being polite and trying not to offend the person asking questions (Simmons & Elias, 1994). Participants had a collegial relationship with me, and it is possible that their responses were intended to please me (León, Lundgren, Huapaya, Sinai, & Jennings, 2007).

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While the KBRI was validated through a peer review process, the BBRI's focus on beliefs meant that there was no way to validate potential responses. Further, the BBRI has never been used to track changes to beliefs, so it was not possible to determine if the instrument was going to be sensitive enough to track changes over a 14-week period. The results of the BBRI were conflicting in some cases, and qualitative data indicated more substantial shifts in belief than the BBRI did. This may be because the BBRI was not designed specifically to measure changes over time.

COVID-19 created additional limitations. The school and its stakeholders were supportive throughout the intervention but were unable to dedicate resources to the program, though the principal took steps to improve his classroom technology configuration between the initial teaching and re-teaching of the lesson. Classrooms at SSCS were configured in a way that made livestreaming to remote students while simultaneously providing live instruction to in-person students challenging, so the experiences of participants while watching the lessons live but remotely were mixed.

Conclusion

This lesson study-based intervention led to several changes in participants' knowledge and some indication of changing beliefs related to boys and literacy. These changes included improved knowledge of boys and literacy as indicated by the KBRI as well as greater focus on student-centered instructional design, and student-centered classroom practice. There were also several researcher-perceived changes to participants' knowledge and beliefs, including greater awareness of the literacy achievement gap between boys and girls, the importance placed on providing students with choice in texts, activities, and assessments, and the value of designing with all students' interests and learning styles in mind.

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In his book *To Be a Boy, to Be a Reader*, William Brozo (2010) wrote that after spending years trying to understand the root of what he calls the "boy problem" of academic underperformance, he determined that "Many of the struggles boys face in school originate from their failure to become fluent readers." While the United States has participated in a number of reform movements designed to improve the performance of different subgroups in a variety of subject areas (see Chapter 1 for a discussion of these efforts), there has not yet been a concerted effort to address the literacy achievement gap between boys and girls, which persists across racial, ethnic, and economic lines. Our greatest resources in addressing this achievement gap are the teachers working diligently to provide elementary and middle school students with the tools they need to achieve their goals in high school, college, and beyond. Lesson study is a valuable tool that can bring teachers together to work towards a common goal in a way that centers teachers' voices and honors their expertise.

Implications

Gender-relevant pedagogy is not an attempt to treat boys monolithically, privilege a specific brand of masculinity over others, or create binary gender categorizations that require books to be either "for boys" or "for girls." It is instead an attempt to ensure that students are provided with choice, their interests and approaches to learning are better understood, and to encourage teachers, who are overwhelmingly female in the United States and elsewhere, to consider how to engage every student in their class through lesson planning that is steeped in an awareness of what works for different groups of students. Improving boys' literacy outcomes is not just about literacy—it is about preventing boys from dropping out of school, empowering them to go on to college, and reducing the likelihood that they will end up incarcerated.

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This intervention has implications for teachers and researchers. GRP components have been discussed in a number of texts, but this is the first study to delineate the core elements into a single cohesive conception. This conception could be helpful to teachers teaching boys literacy and to researchers working in the area of boys and literacy. Additionally, this study combined GRP, which is an approach to engaging boys in instruction, and BL, an approach to teaching students literacy. The use of these strategies simultaneously did not diminish the effectiveness of the intervention, though future interventions of this kind should interweave new learning into all the sessions to keep participants engaged and provide them the sense that they are continuously learning. Additionally, future researchers should consider repeating this study or designing a similar study with a larger sample, as this would allow for the possibility that conclusions could be generalized.

Using a control group is another potentially useful strategy for future researchers, as it would allow a researcher to track changes in the group receiving the treatment as well as those not receiving it, which would be one way to gain deeper understanding of the intervention's efficacy. If the control group shows improvement to their knowledge and beliefs related to boys and literacy during traditional professional development, then GRP and BL rather than lesson study may be the key to initiating these changes. If, on the other hand, the lesson study group shows greater improvement than the group receiving traditional professional development, then the importance of lesson study to the intervention would be affirmed. It is also worth noting that future considerations of the literacy achievement gap may treat gender as a spectrum, rather than as a binary. Existing research is currently focused on the gap between boys and girls, but in the coming years researchers may reconsider how they approach this achievement gap.

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Professional development leaders and administrators considering implementing a lesson study-based professional learning program should introduce the concept of lesson study in advance of the intervention. Providing participants with an overview of what lesson study is, how it works, and the steps to completing it would have allowed participants to spend more time learning about GRP and BL and would have opened up more time for planning the lesson. Ideally, a pre-session or several pre-sessions should provide this context and background to participants. Additionally, participants frequently expressed frustration regarding the lack of interpersonal contact due to being fully remote.

While participants lamented not being able to work together in the same physical space, there may be strategies future researchers adopt to minimize these concerns. One option would be a Session 0 that consists mostly of team building and exploration of the lesson study concept. Fostering positive relationships and providing time to acclimate participants to the concept of lesson study are reasons to consider a pre-session that begins the intervention process, but not the lesson study itself. Finally, the focus of the lesson study should be designing the lesson, and ancillary activities should be kept to a minimum. Participants were most engaged while working together to build and modify the lesson and became more likely to disengage when asked to complete individual tasks or respond to in-session prompts posted to Google Classroom. Collaboration is a critical component of quality professional learning (Desimone & Garet, 2015), and participants indicated that they placed a high value on working together.

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Appendix A

Knowledge about Boys and Reading Instruction Quiz

By completing this survey or questionnaire, you are consenting to be in this research study. Your participation is voluntary and you can stop at any time.

Part 1: True or False (T or F):

- ☐ Gender achievement gaps in reading tend to equal out in high school.
- ☐ Elementary girls score higher than elementary boys do on State ELA assessment.
- ☐ High School boys score higher than High School girls do on State English Regents examination.
- ☐ In elementary and middle school, boys score significantly higher than girls on the State math and science assessments.
- ☐ In elementary school, boys are more likely to be retained than girls.
- ☐ Boys make up the majority of students served in special education.
- ☐ In tests for various cognitive intelligences, boys tend to score higher on spatial tests and girls tend to score higher on visual and verbal tests.
- ☐ Gender gaps in achievement have proved to be equal across racial/ethnic groups.
- ☐ Boys and girls come to school equally prepared in reading readiness skills.
- ☐ Boys value reading as an activity less than girls do.
- ☐ Girls tend to comprehend expository text better than boys do.
- ☐ Boys are more likely to be involved in a disciplinary infraction at school.
- ☐ Children bring their gender identities with them that first day of preschool.
- ☐ Boys will resist reading stories about girls, more than girls resist reading about boys.

Multiple Choice: Please circle your answer choice.

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1. When student scores on standardized tests are compared based on gender, female students generally score higher than male students in which of the following content areas?
 - a. Art
 - b. Language arts
 - c. Math
2. Which of the following groups of students is least likely to receive teacher attention in the reading classroom?
 - a. Minority males
 - b. White males
 - c. Minority females
 - d. White females
3. ____ students tend to “call out” and participate most in the reading classroom.
 - a. Male
 - b. Female
 - c. Neither a male or female majority
4. ____ are most likely by middle school to be grade repeaters or to dropout.
 - a. Males
 - b. Females
 - c. Neither a male or female majority
5. Which of these is not a gender-friendly reading instructional strategy?
 - a. Include movement in your instruction
 - b. Accent the visual
 - c. Incorporate student interest and choices

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- d. Use reading choice as a reward for good behavior
- 6. Please indicate your level of familiarity with the topic of boys and reading instruction.
 - a. Never heard of it
 - b. Heard of it but don't know where
 - c. Limited knowledge
 - d. Confident in my knowledge level
 - e. I could teach the class

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Appendix B

Beliefs about Boys and Reading Instruction Survey

By completing this survey or questionnaire, you are consenting to be in this research study. Your participation is voluntary, and you can stop at any time.

	Please indicate your level of agreement by marking any one of the five responses in the columns on the right side, ranging from (1) “strongly disagree” to (5) “strongly agree.”	Strongly disagree---- strongly agree				
1.	If there were more male teachers in elementary schools, boys’ literacy learning would improve.	1	2	3	4	5
2.	Teachers need to understand more about male culture to improve reading instruction for boys.	1	2	3	4	5
3.	Boys’ behavior at school significantly affects their levels of reading achievement.	1	2	3	4	5
4.	There has been a lack of focus on boys’ education over the last two decades.	1	2	3	4	5
5.	The way that boys’ brains develop accounts for literacy learning differences.	1	2	3	4	5
6.	There are not enough books of high-interest value to boys available in schools.	1	2	3	4	5
7.	Boys are not ready for school at the compulsory entry age, which is six years in this state.	1	2	3	4	5
8.	Boys prefer to read non-fiction to fiction.	1	2	3	4	5
9.	If schools adopted different assessment practices, boys’ reading achievement results would improve.	1	2	3	4	5
10.	Boys often think that reading activities are more appropriate for girls and women.	1	2	3	4	5
11.	Boys prefer technological forms of literacy to print-based forms of literacy.	1	2	3	4	5
12.	Some groups of boys have lower reading levels than others.	1	2	3	4	5
13.	Many current teaching practices in literacy classrooms are	1	2	3	4	5

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	not conducive to boys' literacy learning style.					
14.	Gender can be a factor in a student's approach to reading.	1	2	3	4	5
15.	Boys often tend to be less engaged than girls during reading instruction.	1	2	3	4	5

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Appendix C

Balanced Literacy Evaluation Project
Classroom Activity Observation Sheet
(Frey, Lee, Tollefson, Pass & Massengill, 2005)

Date 6/18/2019	Observer P Fogarty	School YES	Grade(s) 4
Time 8:50am	Teacher REDACTED	Visit 1x 2 3	Number of Students 13

45 Second Interval	Classroom Activity										Accountable Talk			Word Study	Teaching Strategies								
	Repeated	aRead Aloud	sShared Reading	cGuided Reading	dIndependent Reading	dIndependent Writing	cCenter Activities	cOther – Balanced Literacy	sOther – Language Arts	Transition	Other	Talk	Positive Environment		Phonemic Awareness	Concepts of Print	Pair and Share	Predictions	Conferencing	Activate Prior Knowledge	Relate to Ones Experience	Brief Instruction	15 Second Scan Number Off-Task
													Praise	Teacher Smile									
1																							
2																							
3																							
4																							
5																							
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Appendix D

Semi-structured Interview Protocol for the Needs Assessment

1. Could you comment on whether particular boys and girls appear to struggle with the literacy requirements of schools? Do they appear to have particular characteristics? Please do not provide student names in your response.
2. How would you describe the literacy difficulties for boys and girls that make it hard for them to meet school literacy requirements?
 - a. Please elaborate on the types of difficulties these students experience.
3. What particular teaching-learning strategies have you found to be successful in improving literacy outcomes for both boys and girls?
4. What particular teaching-learning strategies appear to work better for boys when teaching literacy than girls? Can you provide an example?
 - a. What particular teaching-learning strategies work better for girls when teaching literacy than boys? Can you provide an example?

Appendix E

Summary Matrix

Research Question	Constructs	Data Source(s)	Data Collection Tool	Frequency	Data analysis
How did participants describe the quality of program delivery offered during the intervention?	Participant perceptions of the quality of program delivery	Teachers	Likert scale exit ticket responses to exit ticket prompts Semi-structured interviews	Last five minutes of every session or upon the conclusion of an intervention activity Once mid-intervention, once post-intervention	Descriptive statistics Multistage qualitative coding
To what extent were all of the intended components of the intervention provided to program participants?	Extent to which components were made available/provided to study participants	Researcher Teachers	Observation protocol consisting of attendance data, assignments completed, and modules viewed Semi-structured interviews	At the conclusion of each session Once pre-intervention, once mid-intervention Once mid-intervention, once post-intervention	Descriptive statistical analysis of attendance data, assignments completed, modules viewed Multistage qualitative coding
What changes if any do Grades 3-8 English language arts teachers perceive in their knowledge and beliefs related to boys and	Participant perceptions of post-intervention changes to their knowledge and beliefs related to boys and literacy	Teachers	Semi-structured interviews Field notes Journal reflections Exit ticket responses to three Likert	Once mid-intervention, once post-intervention Upon completion of each session Upon completion of each session At the	Multistage qualitative coding Descriptive statistics Multistage qualitative coding Multistage

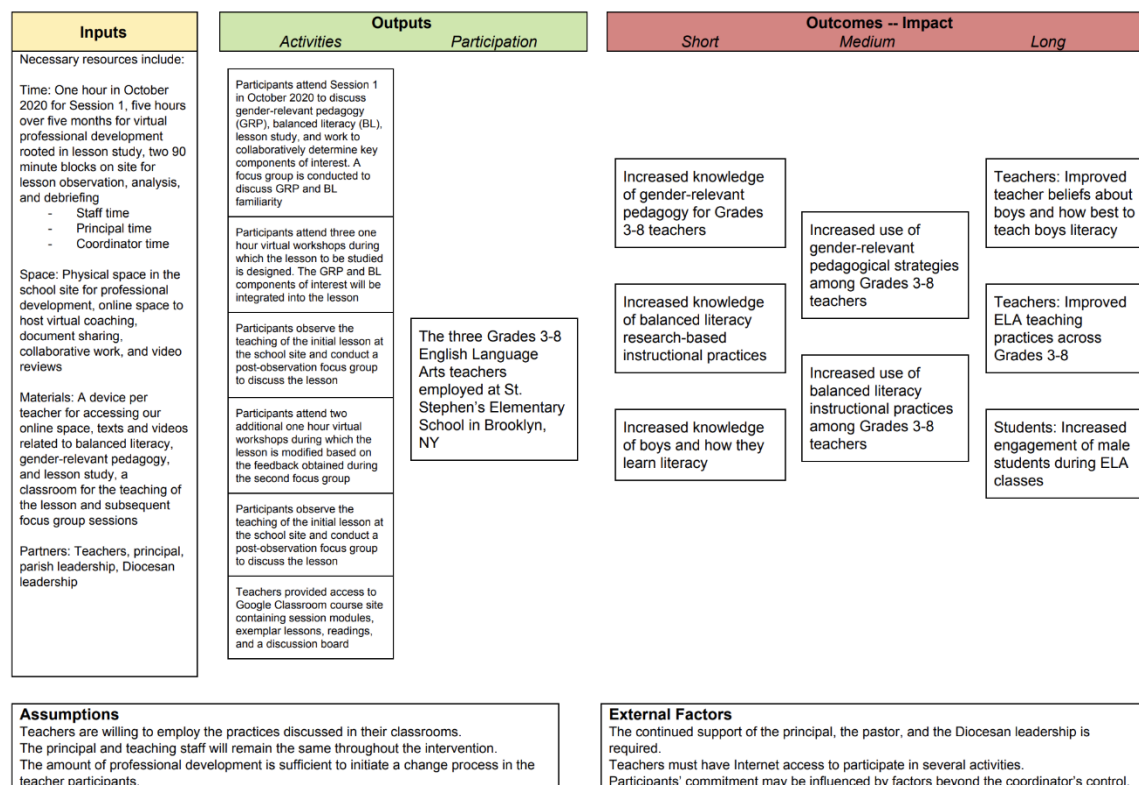
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literacy after professional development on balanced literacy and gender-relevant pedagogy?			scale prompts related to teacher knowledge and beliefs	conclusion of each session	qualitative coding
What changes were noted in Grades 3-8 English language arts teachers' knowledge and beliefs related to boys and literacy after participation in professional development focused on balanced literacy and gender-relevant pedagogy?	Researcher perceptions of post-intervention changes to participants' knowledge and beliefs related to boys and literacy	Researcher Teachers	Beliefs about Boys and Reading Instruction (BBRI) adapted from (Alloway et al., 2002) Knowledge About Boys and Reading Instruction (KBRI) quiz Semi-structured interviews Field notes Journal reflections Exit ticket responses to three Likert scale prompts related to teacher knowledge and beliefs	Once pre-intervention, once post-intervention Once pre-intervention, once post-intervention Once mid-intervention, once post-intervention At the conclusion of each session At the conclusion of each session At the conclusion of each session At the conclusion of each session	Comparative quantitative analysis Multistage qualitative coding Multistage qualitative coding Multistage qualitative coding Multistage qualitative coding Descriptive statistics

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Appendix F

Logic Model



Appendix G

Participant Recruitment Email

Dear Educator,

I am a doctoral candidate working under the supervision of Dr. Honorine Nocon, Professor/Advisor in the Doctor of Education Program at Johns Hopkins University's School of Education. I am emailing you because I am conducting a study that will provide collaborative professional development in literacy instruction designed to enhance teacher knowledge of research-based instructional literacy strategies and to build awareness and knowledge of gender-relevant pedagogy for boys in English language arts classes. It is estimated that there will be 3-6 total participants in this study.

The study was reviewed and received ethics clearance through Johns Hopkins University Homewood Institutional Review Board. Over the course of ten online professional learning sessions beginning in November, participants will collaboratively design an English language arts lesson that incorporates elements of gender-relevant pedagogy and balanced literacy into instructional practice. Participants will participate in interviews, complete quizzes and surveys, complete journal entries, make discussion posts, and engage in other activities via Google Classroom. Overall, the sessions will take a total of 10-12 hours, while discussion posts will be ongoing throughout the project.

If you are interested in participating, please reply to this email and indicate your interest. My email address is pfogart2@jh.edu. Once you confirm interest, I will send a confirmation email indicating that you are a participant and provide you with further information concerning the initial survey, as well as a consent form that needs to be signed and returned to me. I appreciate your consideration.

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Sincerely,

Patrick Fogarty

Name and address of the Principal Investigator:

Dr. Honorine Nocon

Professor/Advisor

Doctor of Education Program

Johns Hopkins University, School of Education

2800 North Charles Street, Baltimore, MD 21218

Appendix H

Semi-structured Interview Protocol for the Intervention Study

The interview protocol will be semi-structured. The questions will be asked and the researcher will probe the answers and follow up on points made by the participants.

1. How would you describe the quality of program delivery offered during the intervention?
2. To what extent were all the intended components of the intervention provided to you?

Consider the number of sessions you attended or participated in, whether you participated in the Google Classroom modules, and whether you were able to participate in the lesson being taught and re-taught.

3. What changes if any do you perceive in your knowledge related to boys and literacy after professional development on balanced literacy and gender-relevant pedagogy?
4. What changes if any do you perceive in your beliefs related to boys and literacy after professional development on balanced literacy and gender-relevant pedagogy?

Appendix I

Field Note Template

Fogarty 7/31/2020, adapted from a template provided by Dr. Honorine Nocon

Researcher:

Date Field Note Written:

Date of Observation:

Start time:

End time:

Duration of observation:

Location of Observation:

Persons Present:

Overview:

In this section you write a “wide-angle” description of the context. Is it the school as a whole? A classroom? The playground? What is the atmosphere? Quiet for testing? Excited for a special event? Parent activity? Principal’s office? Counselor’s office? Quiet day; loud day, etc.

Focused Observation:

In this section you narrow in on interactions of particular interest and describe them in as much detail as possible, including what you recall of key comments, etc.

Practice writing what you saw and heard, i.e., observed behaviors. Resist reflecting in this section.

Reflection:

Here you reflect on your observation. You can start with your global observations, i.e., I found very little motion and generally silence, or this was an unusually chaotic day.

Then, you can move to reflections on the key events, etc.

Later, you can add to the reflections:

Reflective/Analytical Notes

Date:

Here you can add to your reflection based on having more data, etc. For example, after a week or a month, you may have become aware of information that could change the meaning you make of what you observed. Add that along with the date of the addition.

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You can come back that way 1, 2, 3 or more times.

Field Note Notes:

- It is best NOT to take notes, or to take only minimal notes, like key words to trigger your memory. This is because having a note taker present and obvious changes behavior and can interrupt the flow of activity. A trick is to leave for the bathroom or other, and jot down key words to trigger your memory.
- Write your field notes within 24 hours of your observation. Memory loss accelerates after 24 hours.
- Always use your template, as it will allow you to track comparable information over time.
- As you get used to taking field notes on a regular basis your skills of observation and memory improve. You will find yourself being able to “drift” back into the observation. Really. I have taught this technique successfully to undergrads, grads, and faculty. It is not my technique. It is classic ethnographic technique.

Appendix J

Journal Reflection Template

In this journal, please record your thoughts and responses to the prompts below:

1. What changes if any do you perceive in your knowledge related to boys and literacy after today's professional learning session on balanced literacy and gender-relevant pedagogy?
2. What changes if any do you perceive in your beliefs related to boys and literacy after today's professional learning session on balanced literacy and gender-relevant pedagogy?
3. What worked well during today's session?
4. What could be improved about today's session?

Please aim for one entry a session. Entries can be as brief as two sentences and as long as the respondent feels is necessary to respond to the prompts. Your entries will be anonymized prior to being referenced in my research.

Session 1

Please type your entry here.

Session 2

Please type your entry here.

Session 3

Please type your entry here.

Session 4

Please type your entry here.

Session 5

Please type your entry here.

Session 7

Please type your entry here.

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Session 8

Please type your entry here.

Session 9

Please type your entry here.

Session 10

Please type your entry here.

Appendix K

Exit Ticket

Date of session: _____

1. The quality of program delivery during today's session was high.

O ————— O ————— O ————— O ————— O

Strongly disagree Disagree Neutral Agree Strongly agree

2. Today's session met its stated objective(s).

O ————— O ————— O ————— O ————— O

Strongly disagree Disagree Neutral Agree Strongly agree

3. Today's session modified my knowledge of teaching literacy to boys.

O ————— O ————— O ————— O ————— O

Strongly disagree Disagree Neutral Agree Strongly agree

4. Today's session modified my beliefs of teaching literacy to boys.

O ————— O ————— O ————— O ————— O

Strongly disagree Disagree Neutral Agree Strongly agree

5. Today's session added to my knowledge of balanced literacy instruction.

O ————— O ————— O ————— O ————— O

Strongly disagree Disagree Neutral Agree Strongly agree

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Appendix L

Observation Protocol

Participant Name:

Session attendance:

Session 1	Session 2	Session 3	Session 4	Session 5	Session 6	Session 7	Session 8	Session 9	Session 10

Modules viewed:

Session 1	Session 2	Session 3	Session 4	Session 5	Session 6	Session 7	Session 8	Session 9	Session 10

Exit tickets completed:

Session 1	Session 2	Session 3	Session 4	Session 5	Session 6	Session 7	Session 8	Session 9	Session 10

Digital journal entry completed:

Session 1	Session 2	Session 3	Session 4	Session 5	Session 6	Session 7	Session 8	Session 9	Session 10

Appendix M

Researcher Diary

Date: _____

Time Spent on Project Today: _____ hrs

Page: _____

<u>Notes</u>	<u>Ideas/Reflections/Actions</u>

<u>Maps & Sketches</u>	

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